FAMILY STRUCTURE AND JUVENILE DELINQUENCY:
THE MEDIATING ROLE OF
SOCIAL LEARNING VARIABLES

By

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A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL
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There has been relatively little research to date
connecting the behavioral process in social learning theory
to elements of social structure in accounting for criminal
and delinquent behavior. The linking of social structure to
crime and delinquency through the social learning process is
the next step in the development of social learning theory.
The theory would hypothesize that the variables specified in
social learning theory mediate the effects of social
structure on deviant behavior.

Seeking to establish intervening variables in the
relationship between family structure and delinquency, a
three-level theoretical model is presented with six measures
representing three components of social learning theory. A

longitudinal analysis is conducted on three waves of a nationally representative sample, permitting generalizability of findings. The panel data of the National Youth Survey enable the observation of particular individuals in terms of their family structure and their scoring on social learning measures, and their subsequent involvement in serious delinquent or criminal behavior. Correlational and regression analyses are used to establish relationships between the three levels of measurement, and to test the central hypothesis that social learning variables mediate the effects of family structure on delinquency.

Results provide support for the hypotheses that family structure is associated with delinquency, that family structure is associated with social learning variables, that social learning variables are associated with delinquency, and that selected social learning variables generally reduce the strength and significance of the effect of family structure on delinquency. These findings persist after controlling for sex. It is concluded that the social learning variables significantly mediate the impact of family structure on delinquency.

Although crime rates have moderated and declined in the past few years, between 1965 and 1990 the arrest rate for violent crime by juveniles rose from approximately 130 per 100,000 to 430 per 100,000, according to the FBI (U.S. Department of Justice, 1992). During the same period of time there also has been considerable change in the structure of families. The divorce rate (per 1,000 married women), for example, rose from 9.2 in 1960 to 21 in 1988, having peaked in 1981 at 22.6 (U.S. Department of Commerce, Bureau of the Census, 1994a). The rising divorce rate has accompanied a general change in family structures. The amount of single-parent families, for example, increased from 12 percent of families with dependent children in 1970 to 27 percent in 1993 (U.S. Department of Commerce, Bureau of the Census, 1994b). Many researchers have sought to specify a causal link between the increase in crime and the changes in families. Families are an intuitively appealing place to look for an explanation of delinquency because of the prominent role that they occupy in the process of socialization.

Family has long been an important variable in the etiology of delinquency in both social and biological

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research (see Akers, 1994; Siegel and Senna, 1991; Hagan and Sussman, 1988; Vold and Bernard, 1986). The sociological literature suggests a variety of ways by which family variables affect delinquency (Jensen and Rojek, 1992). For example, strain theories position the family as an important determinant of social class and thereby the likelihood of delinquency. Social learning theory suggests that families are an important shaper of conforming or deviant attitudes and behavior. For control theories, families are an important source of bonding by which youths are directed toward conformity and away from delinquency.

It is easy enough to understand how the family would usually have a considerable impact on delinquency. "The family has typically been viewed as the most crucial institution in our society for shaping a child's personality, attitudes, and behavior," (1992, p. 262) according to Jensen and Rojek. Children typically spend most of their early years in the presence of other family members. Even after reaching school age the family remains one of the most important institutions of socialization, along with schools and peer groups.

Socialization in the family remains significant today even if the social functions of families have declined and individuals spend less time in the family setting. With the increased complexity of modern life and the variety of available leisure activities, individuals today are more likely than their forebears to live a greater portion of

their lives outside of the home. The typical household size itself declined as individuals increasingly moved away from their family of origin and the nuclear family became more common. Census data show that the average household size declined from 5.4 persons in 1790 to 4.2 in 1900, to 3.3 in 1940, and to 2.6 in 1988 (Eshleman, 1991). Despite changes such as these, families remain central socializing forces today. "Although the family may have been a more important social institution at earlier points in history, most scholars are still willing to accept that it remains a major setting for socialization in American society" (Jensen and Rojek, 1992, p. 263).

The present study adds to the empirical and theoretical body of knowledge relating to the connection between family structure and delinquency in a variety of ways. While it will be shown that the empirical validity of social learning theory has been well demonstrated in the literature, there has been relatively little research to date connecting the behavioral emphasis of the theory to elements of social structure. The linking of social structure to crime and delinquency by the social learning process is the next step in the development of social learning theory (Akers, 1994). In looking to establish intervening variables in the relationship between family structure and delinquency, a three-level theoretical model will be presented with six measures representing three components of social learning theory. The theory would hypothesize that the variables in

social learning theory mediate the effects of social
structure on deviant behavior.

Additionally, the methodological design employed here
attempts to improve on the shortcomings of much previous
research on family and delinquency. In a review of the
literature, Free (1991) concluded that a major weakness of
previous studies is their overreliance on cross-sectional
data and that there has been an overemphasis on minor
offenses. A longitudinal analysis will be employed similar
to that used by Heimer and Matsueda (1994) but using more
recent data spanning three years. The use of a nationally
representative sample will allow a broad generalizability of
findings. The panel data of the National Youth Survey and
the use of longitudinal analysis will enable the observation
of particular individuals who have experienced a change in
family structure and their reactions to that change in terms
of serious delinquent or criminal behavior.

CHAPTER 2
FAMILY STRUCTURE AND DELINQUENCY

In this chapter a variety of literature pertaining to
family and delinquency will be reviewed. First, the impact
of family relationships will be considered, including the
effects that parental criminality, parental discipline and
punishment, various types of abuse, and other family
relationships have on delinquency. This part of the review
will provide a background for the subsequent review of the
literature on family structure and delinquency. As will be
shown, some researchers maintain that family structure
affects delinquency, at least in part, through family
relationships such as those to be discussed here. As the
exogenous independent variable in this study, the concept of
family structure and the implications of its measurement will
be discussed. Finally, research pertaining to the
relationship between family structure and delinquency will be
reviewed.

Family Relationships

Given that families are a key socializing institution,
they may be implicated in delinquency to the extent that the
socialization they provide is inadequate or deviant.
Parental criminality is one way that delinquency may be based

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in the family. Delinquency has also been investigated as a
product of the method used by parents to discipline and
punish their children. Family violence and abuse is another
way in which socialization may result in delinquent behavior.
Furthermore, other nonviolent and seemingly healthy family
relationships may conceal pathological interaction and
involve socialization toward delinquency.

Parental Criminality

Parental criminality has been found to be related to an
increased likelihood of delinquency. Using official records
from the Cambridge Study in Delinquency Development, West
(1982) found that criminality in both fathers, mothers, and
brothers was highly predictive of delinquent behavior. Sons
with criminal fathers were approximately twice as likely to
engage in criminal activities by age 22 compared to those
with noncriminal fathers. The presence of multiple criminal
influences further increased the likelihood of a son engaging
in delinquency. "The chances of a man being a delinquent
were some three and a half times greater if he had more than
two other family members with a record than if he belonged to
a conviction-free family," (1982, p. 45) according to West.
In a recent article using data from the Cambridge Study, Rowe
and Farrington (1997) suggested a genetic explanation for the
familial transmission of convictions. Their findings
indicated that parental criminality affected child
criminality directly and not via the effects of family

environment. However, they could not rule out the role of family environment altogether due to a small family environment effect in their findings and the possibility of other unmeasured effects.

Lattimore et al. (1995) found parental criminality to be one among several family variables, including family violence, that was significantly related to violent recidivism in a cohort of male parolees. In a Danish cohort study, Mednick et al. (1987) found that fathers' criminality was directly associated with general crime in their young adult sons. Mednick et al. (1990) found that fathers' criminality influenced adult sons' criminality, in part through an increased risk of family instability. Laub and Sampson (1988; see also Sampson and Laub, 1993) found that criminality in either parent, and especially substance abuse, had a strong indirect influence on delinquency by way of disrupted social control in the family. Analyzing data collected in the 1940s by Sheldon and Eleanor Glueck, Laub and Sampson found that significant effects exhibited by parental criminality and drunkenness on serious delinquency were largely mediated by family process variables such as attachment, supervision, and erratic parental discipline.

Parental Discipline and Punishment

Over 90 percent of American parents use physical punishment to correct their children's misbehavior, according to Straus (1991). Most research is in agreement that

inconsistent parental discipline, whether too harsh or too lenient, is related to delinquent behavior (Jensen and Rojek, 1992; Siegel and Senna, 1991). In a research review, Snyder and Patterson (1987) report strong evidence of a link between ineffective disciplinary practices and the families of delinquents. "In both lax and enmeshed discipline styles, punishment is not used consistently, contingently, and effectively to discourage the aggressive, antisocial behavior of the child," (1987, p. 223) according to Snyder and Patterson. Agnew (1983) found that while physical punishment slightly decreased the likelihood of self-reported delinquency among children who perceived their parents as consistent, where discipline was inconsistent children were more likely to report delinquency. Krohn et al. (1992) found that consistent punishment and spanking were significantly related to a decrease in self-reported delinquency. McCord (1991) found that consistent, nonpunitive discipline by mothers helped to insulate sons from delinquent influences. Investigating the sex differences in delinquency, Jensen and Eve (1976) suggested that the more restrictive supervision received by females may partly account for their lower involvement in delinquency.

Using the Glueck data, Sampson and Laub (1993) also found that the use of erratic and punitive discipline or punishment by mothers and fathers affected official and unofficial delinquency. Moreover, they found that background variables, such as father's alcoholism and criminality,

affected discipline and punishment by either parent, suggesting "the possibility that some, if not all, of the effect of father's criminality on the son's delinquency may be attributable to family discipline" (Sampson and Laub, 1993, p. 79). Finally, they found that discipline and punishment, among other family process variables, mediated the effects of structural background variables on official and unofficial delinquency.

Abuse in the Family

Violence in the family may take the form of child abuse, including sexual abuse, as well as violence between parents or siblings. Child abuse may refer to the overt physical aggression against a child or to neglect, wherein children are deprived of attention, food, shelter, or other care. Any type of violence or abuse in the family, directly involving a child or not, may increase the likelihood of that child engaging in delinquency.

The issue of child abuse has gained much recognition since the 1960s. Although the true extent of abuse is not known due to the difficulty in obtaining accurate data and the methodological differences of various reports, most researchers agree that child abuse is a significant problem (Gelles and Conte, 1991; Pagelow, 1984). Straus and Gelles (1986), for example, found that parents reported incidents of severe violence toward their children at an annual rate of 19 per 1,000 children aged three to 17. Their measure of severe

violence included kicking, biting and hitting with a fist; beating up; and using a gun or knife. The findings by Straus and Gelles were considered conservative because the sample included only those children living with both parents and the violence was self-reported, and there may have been an increased consciousness of the unacceptability of child abuse by the mid-1980s. Additionally, this finding includes only the most serious type of abuse. Although Straus and Gelles report that this figure represented a decline in violent abuse compared to their findings in 1975, other studies suggest that child abuse has increased (see Gelles and Conte, 1991).

Sexual abuse is a more specific form of child abuse that poses serious social-psychological threats to children (Gelles and Conte, 1991). It may range from rewarding a naive child for inappropriate sexual behavior, to fondling and other inappropriate touching, to using force or the threat of force for the purposes of sex (Siegel and Senna, 1991). Findings on the amount of sexual abuse vary but typical estimates are that 19 percent of females and nine percent of males are sexually abused before age 18 (Finkelhor, 1984). Sex abuse within the family usually occurs across generations. The victims are more often female, although sex abuse of boys is more likely underreported, and the abusers are overwhelmingly male (Pagelow, 1984; Finkelhor, 1984).

In their national survey of family violence, Gelles and Straus report that children from violent homes are "three to four times more likely than children from nonviolent homes to engage in illegal acts" (1988, p. 129). While they were not able to establish causality, Gelles and Straus suggest that their research and other studies show evidence of a cycle of violence existing in many homes. "Violent experiences set the stage for the individual and social traits that lead to trouble. The trouble is responded to with more violence" (1988, p. 129).

The effects of child abuse and its relationship with delinquency are not clear even though it is generally agreed that abuse does have detrimental long-term consequences. "Definitive support for a direct causal relationship between an abusive childhood and delinquency is lacking, but researchers generally agree that abuse and neglect may have a profound effect on behavior in later years," (1991, p. 265) according to Siegel and Senna. The authors said that this agreement is partly based on a number of studies showing that many delinquents and criminals have a history of child abuse.

In a cohort study comparing serious, officially recognized abuse cases with a control group Widom (1989a) found that 29 percent of the abused group later had adult criminal records for a nontraffic offense compared to 21 percent of the control group. Widom's measures of abuse included violent physical abuse, sex abuse, and neglect. Considering demographic variables, Widom found that those who

were older at the time of abuse, male, and black were at highest risk of criminality while being young, white, and female was associated with lower risk. While abused youths were more likely to become criminal than nonabused youths, the relatively small difference between the two groups, compared to what might be expected, points to the indirect nature of the relationship between family variables and delinquency.

Widom (1989b) reported that children who were neglected, and especially, violently abused had a significantly greater risk of becoming delinquents, criminals, and violent criminals. More recently, Widom (1996) also found a greater likelihood of arrest as juveniles and as adults for the victims of childhood abuse or neglect. These findings applied to arrests for both drug-related offenses and property crimes. Widom also found that "the victims of sexual abuse are not more likely than other victims of physical abuse or neglect to become involved with crime" (1996, p. 50).

Widom (1989b) suggested that her findings, and similar findings by other researchers, have a mixed message for the cycle of violence hypothesis. Considering the large number of abused children that do not become delinquent or criminal, Widom (1989b, 1996) suggested that many victims apparently manifest their abuse in more subtle ways. This may be the case particularly for females, who are both more likely to be sexually abused and less likely to become delinquent. Widom

said that attention should focus on mediating possible variables that buffer or protect abused or neglected children from delinquent outcomes.

Reviewing the literature on the effects of childhood sex abuse, Finkelhor (1984) reported that a variety of studies have shown high proportions of various troubled populations, including delinquents, were sexually victimized as children. While he said the case apparently may be easily made that sex abuse leads to injurious outcomes, Finkelhor cautioned, "It is possible that the long-term effects seen in these cases are a function not of the sexual abuse but of other pathological elements, such as psychological abuse, parental neglect, or family disorganization" (1984, p. 189).

Similarly, Pagelow (1984) warned that the finding of a strong relationship between childhood violence and later deviant behavior may overlook the issue of causality. "Such a blanket assumption would be hazardous because there are too many possible intervening variables that can influence outcomes not included in simple 'cause and effect' models" (1984, p. 229). Pagelow also suggested that official records may be misleading. "Connections between child protection agencies and the juvenile justice system are clear. Entering the first, by becoming an identified case, can serve to increase an abused child's chances of entering the second" (1984, p. 255).

Reviewing the literature on family violence and neglect, and its relationship with children's deviant behavior, Koski

(1988) reported a complex and often contradictory array of findings. The research "remains largely descriptive and piecemeal and leads to only one fairly obvious conclusion: unhealthy families tend to produce deviant children, although not always in the ways expected" (1988, p. 43). Koski also said that research appears to suggest that a child's whole family environment, where more than one type of abuse may exist, may be more critical to understanding deviance and delinquency than any single type of abuse.

The family environment includes not only the direct physical abuse and neglect of a child by a parent discussed above, but also violence involving other family members. Straus and Gelles (1986) reported that cases of severe violence by husbands toward their wives numbered 30 per 1,000 couples in a 1985 national survey. Controversially, they also found that the rate of severe violence by wives toward husbands was 44 per 1,000 couples. Straus and Gelles added that a number of studies show that violence on the part of wives is often committed in retaliation or self-defense, and that this explanation is supported by the fact that females are relatively nonviolent outside of the home. Some studies have shown that a child's exposure to spousal violence as well as violence committed by other family members is related to the child's use of violence (Pagelow, 1984) and to later family and nonfamily violence by the grown child (Fagan and Wexler, 1987).

Other Family Relationships

While much research has focused on overt, physical abuse
and neglect, delinquent or other deviant behavior may result
from more routine experiences within the family setting.
Social groups such as families exert considerable influence
over the individuals within that group. "The relationships
of persons in a [family] nexus are characterized by enduring
and intensive face-to-face reciprocal influence on each
other's experience and behavior" (Laing and Esterson, 1971,
p.7). An individual may derive from others within their
group a sense of self-fulfillment or they may derive feelings
of alienation, even to the point of madness (Laing, 1962).
Laing and Esterson (1971), for example, make the case that
schizophrenia is socially based within dysfunctional family
relationships.

Satir (1972) distinguishes between "troubled" and
"nurturing" families. "Troubled families make troubled
people and thus contribute to crime, mental illness,
alcoholism, drug abuse, poverty, alienated youth, political
extremism, and many other social problems" (1972, p. 18).
The factors that determine whether a family is nurturing or
troubled--individual feelings of self-worth, communication
with each other, family rules about proper feelings and
behavior, and the way that the family's members relate to
other people and institutions outside the family--are largely
learned, primarily within the family, Satir said. The more

that self-worth is high, the more direct and honest the communication, the more flexible the family's rules, and the more open a family is to society, then the more likely a family will be nurturing. These variables are important to family quality whatever the nature of family structure—whether it is a family with two biological parents, a single-parent family, a family including stepparents, or an institutional family not involving parents, according to Satir (1972).

Snyder and Patterson (1987) describe positive parenting as interactions between parent and child which foster growth skills and encourage the development of normative values and standards of behavior. They said these ends are fostered in part "when the parents demonstrate and communicate interest in the child in a positive, noncritical fashion, when the parents communicate support and caring to the child, and when the parents and child share mutually pleasurable leisure activities" (1987, p. 223). According to Snyder and Patterson, a variety of research suggests a link between the absence of positive parenting and delinquent behavior. "A failure by parents to foster a child's skills, to model and encourage normative values, and to provide a caring environment, places a child at risk for delinquency" (1987, p. 225).

McCord (1991) found that a combination of family variables which she labeled "poor child rearing" increased the risk of officially recorded delinquency. This

combination included variables from three sets of items measuring mother's competence, father's interaction with the family, and family expectations. Of these three groupings, McCord found that mother's competence and family expectations were strongly related to serious criminality as a juvenile, while father's interaction with the family had a more important role in affecting adult criminality.

McCord's data consisted of case studies on male youths from homogeneous socioeconomic backgrounds collected in the Boston area in the 1940s and tracked in the late 1970s. McCord's measures of mother's competency included self-confidence in handling problems, affection for her son, nonpunitive discipline, and family leadership role. Father's interaction with the family included affection for son, esteem for mother, esteem in the eyes of the mother. Father's interaction also included, negatively, parental conflict and father's aggressiveness. Finally, the family expectations cluster included maternal restrictiveness, parental supervision, and demands placed on the son.

In a meta-analysis of the research on families and delinquency, Loeber and Stouthamer-Loeber (1986) reported a significant relation between marital discord and children's delinquency and aggression. The measures of marital relations include ratings of happiness, amount of conflict, lack of warmth, and hostility. Generally, Loeber and Stouthamer-Loeber found that variables such as parent-child involvement, parental supervision, and parental rejection had

the largest impact on crime and delinquency. They also reported that many studies have shown that broken homes have an impact on delinquency, although not as strongly as in the case of marital discord.

Nevertheless, much research has focused on the question of family structure. The following section will review the research literature on the delinquent outcomes related to broken homes and to family structure. Despite the large amount of research in this area there remains some inconclusiveness regarding the relationship between these measures of family and delinquency.

Family Structure and Broken Homes

Research addressing family structure has often been grouped under the label "broken homes." Thus, the two terms often have been used interchangeably in previous literature. In order to avoid confusion, a distinction should be made between the terms family structure and broken homes. A broken home is one in which a two-parent structure has been reduced to a single-parent structure, whether by divorce, separation, or death. Family structure refers more generally to the number or type of parents living in a household. Family structure may be measured by the presence of mothers or fathers, and biological parents or stepparents. Thus, a broken home more specifically describes a particular family situation, compared to the broader description of family structure.

As will be seen in the remainder of this chapter and in the review of the research literature pertaining to social learning theory in Chapter 3, many researchers have focused on an increase in divorce and a growing number of single-parent families as correlates of delinquency. The assumption is that the disintegration of the family is a significant cause of inadequate socialization, which in turn should have an effect on the likelihood of delinquency. In fact, however, family disintegration manifests itself in a variety of forms which may be captured with varying success by the dichotomy of "intact" and "broken" homes or by measures of family structure. The first part of this section will address the potential for confusion about the concepts of broken homes and family structure, and the implications of this distinction for measurement. Second, empirical research on the relationship between family structure and delinquency will be reviewed.

Conceptual and Methodological Issues

In the section above on family relationships it was seen that "intact," or two-parent family structures, may be variously integrated. "Broken," or single-parent families as well are variously disintegrated, and perhaps not broken at all. For example, single parenthood may result not simply from divorce or other family conflict. There are single parents, such as some who adopt, who have not at any time been united with another as a couple and neither parent nor

children experience the stress of divorce. Furthermore, family conflict may result in divorce, separation, or in no recognizable change in family structure. Stepfamilies are another source of complication for the study of families, as they may vary in the quality of life they provide for children.

According to Wells and Rankin, "Broken homes are invariably defined from the reference point of children vis-à-vis their relationship with parents, whereas sibling structures are ignored" (1986, p. 70). A broken home refers to an impaired or disrupted family structure. Broken homes are typically measured as those in which the mother and father are divorced (e.g. Furstenberg and Teitler, 1994; Paternoster and Brame, 1997). Such a measure does not necessarily distinguish the sex of a single parent. Using single parenthood as a proxy for divorce would overlook the alternative possibilities of separation, death of a parent, or a never-married single parent.

Measuring divorce itself is suited to a focus on the process and outcome of marital breakdown with the implication that children suffer adverse consequences as a result of their parents' divorce or separation. According to Wells and Rankin (1986), the sudden change in living routines which accompany divorce can generate stress and conflict that may result in antisocial behavior. Thus, delinquency may result not from the change in family structure but from "parental conflict that precedes and attends the separation, and the

sudden change in circumstances affected by the separation"
(1986, p. 77). Furstenberg and Teitler (1994) suggested that
the quality of earlier family life may have significant
consequences for children whether parents separate or not.
They found that some family characteristics typically thought
to occur with divorce, such as marital conflict, economic
stress, and poor parenting practices, actually existed prior
to divorce.

The conditions associated with divorce that have an
influence on delinquency may only be temporary, existing
until individuals adapt to new routines. The results of
Furstenberg and Teitler (1994) suggest, however, that the
impact of divorce may be more long-lasting. They found that,
compared to their counterparts from intact families, children
of divorce were more likely to express discontent with life,
more likely to experience teen pregnancy, less likely to
finish high school and attend college, more likely to engage
in substance abuse and delinquency, and more likely to be
arrested.

In contrast to the focus on divorce, many researchers
alternatively look to the number of adults in the household,
hypothesizing that a change in family structure that results
in fewer parents will be associated with a decreased level of
social and economic resources and conventional socialization
compared to what would be expected from two-parent families.
Thus, single-parent homes are thought to be at a social and
economic disadvantage due to the reduced resources and

opportunities available to single, and typically female, parents (Wells and Rankin, 1986; see also Smith and Krohn, 1995). In such cases, divorce leads to a reduction of economic resources and perhaps to poverty which, through a variety of pathways, may lead to delinquency (Curran and Renzetti, 1996). For example, poorer families are more vulnerable to stress and conflict that may result in less effective parenting and child behavior problems. According to Gove and Crutchfield, "Single-parent families tended to be of lower socioeconomic status than the intact families, and children of single-parent families were also more likely to be delinquent" (1982, p. 307). In a review of social psychological research pertaining to female-headed families published between 1970 and 1980, Cashion (1982) found that after controlling for socioeconomic status children from female-headed families fared as well as children from two-parent families, in terms of juvenile delinquency rates and other measures.

Measures of family structure also may take into account the presence of stepparents. Some researchers divide their family structure measure into categories for two biological parents, a biological parent combined with a stepparent, and a single-parent (e.g. Coughlin and Vuchinich, 1996; Cernkovich and Giordano, 1987). Another approach is to elaborate on this typology by distinguishing each type of parent by sex (e.g. Johnson, 1986). Another way of measuring family structure is to simply count the number of parents in

the household, whether they are biological parents or stepparents (e.g. Van Voorhis et al., 1988). This measure differs significantly from the previously described measure in that it focuses on the number of parents rather than on the type of parents.

Research on Family Structure

The varying ways in which family structure may be defined and measured suggest the difficulties that may be encountered when dealing with the concept. In fact, the empirical evidence on family structure and delinquency reveals varied and sometimes contradictory findings. The following two paragraphs illustrate the point.

In favor of a family structure effect, in their nationally representative self-report survey of youths aged 12 to 17, Dornbusch et al. (1985) consistently found a greater number of delinquents among mother-only households compared to households with both biological parents. This relationship was consistent for a variety of self-reported and officially recorded delinquency, including law contacts, as well as across sex and social class. Reviewing the literature on family and delinquency, Gove and Crutchfield (1982) cite overall findings consistent with Dornbusch et al. "An intact home with harmonious marital and family relationships will be closely associated with a lack of delinquency and . . . a lack of harmonious marital and family relationships and/or a single-parent home will be associated

with delinquency" (1982, p. 304). More recently, Wells and Rankin systematically analyzed 50 studies and concluded that there is "a consistent and real pattern of association" between broken home and delinquency variables, showing a bivariate correlation of .10 to .15 (1991, p. 87). They said this association is stronger for milder forms of juvenile misconduct and weakest for serious and violent crimes.

On the other hand, in their study of high school students in a large midwestern city, Hennessy et al. (1978) found no effect of broken homes on a wide range of self-reported delinquency, including being picked up by police and appearances in court. They measured a broken home as any one that did not include both a biological mother and a biological father. While finding no broken-home effect, they did suggest that other patterns of interactions within the family may be related to delinquency. For example, Salts et al. (1995) found in their study of males aged 12 to 19 that family structure variables were not related to self-reported violence, theft, or other delinquency. However, they found that other family variables such as conflict and cohesion were related to violence in the expected directions. Jensen and Rojek concluded in their text, "At the present time there is little conclusive evidence to suggest that the broken home is a critical variable in the understanding of delinquency" (1992, p. 270). In another text, Curran and Renzetti claim there is "little evidence to support the broken home hypothesis," while at the same time they acknowledge that

"research indicates that parents' relationships and interactions with their children are correlated with the children's involvement in delinquency" (1996, p. 349).

Consistent with Curran and Renzetti's contention and the findings of Salts et al., many researchers have addressed the complicated findings relating to broken homes and delinquency by drawing a distinction between the number and type of parents in a household (family structure), and the quality of parenting in a household (often referred to as family function). "It is not family structure in itself that affects delinquency but the personal relationships within the family unit which result from family disorganization in single-parent families," (1984, p. 363) suggested Farnworth.

For example, Van Voorhis et al. (1988) compared the effects of structure versus quality of relationships in the family on self-reported delinquency. Using a sample of high school students from a small midwestern town, they found in both correlational analyses and multivariate tests that family structure had weak effects for status offenses only, while measures of home quality were more strongly related to a variety of delinquency. Family structure was measured in two ways: intact versus broken homes, and two-parent versus single-parent homes. Family quality measures included scales on supervision, affection, enjoyment of home, conflict, and abuse of children.

Using data from the National Survey of Youth, a 1972 self-report survey of youths aged 11 to 18, Rankin and Kern

(1994) found that the likelihood of delinquency was the same for all children who were strongly attached to one parent, regardless of whether they lived in an intact or single-parent family. They also found the likelihood of delinquency to be lower for those living in intact families and attached to both parents than for those living with and attached to a single parent. Rankin and Kern suggested that single-parent families may have higher rates of delinquency due to more sporadic parental supervision, monitoring, and discipline. Thus, measures of family quality may mediate family structure. Attachment was measured as a composite of intimate communication, family activities, supervision, and affection. Rankin and Kern's results applied to a variety of delinquency but not to property offenses such as theft and vandalism.

In their study of youths aged 12 to 19 in a single metropolitan area, Cernkovich and Giordano (1987) found that family structure was unrelated to a wide range of self-reported delinquency. Family quality variables, on the other hand, were significantly related to delinquency. Their measure of family structure was divided into responses for living with both biological parents, with the mother only, and with the mother and a stepfather. Significant family quality variables were supervision or monitoring, identity support, parental caring and trust, instrumental communication, parental disapproval of peers, and conflict with parents. Only intimate communication was not related to

delinquency. Cernkovich and Giordano said that their family
quality variables were similarly related to delinquency
across different types of family structure. "While this does
not necessarily mean that home status is an unimportant
variable in delinquency involvement, it does suggest that
similar family dynamics are operating within various types of
family structure" (1987, p. 312). Noting their finding of no
broken-home effect, Cernkovich and Giordano said their
results do not suggest that family interaction mediates
broken homes, as many have assumed.

Indirect and direct effects of family structure

Other research has substantiated that family structure
does have an effect on delinquency. A number of studies have
suggested that family quality variables mediate the
delinquent effects of family structure. Using a larger
sample from the Richmond Youth Project (a 1965 self-report
survey of junior and senior high school students in
California's Contra Costa County) Matsueda and Heimer (1987)
showed that the effect of family structure on delinquency may
be mediated by intervening variables that relate to family
function, or quality. Investigating general self-reported
delinquency, they found for both blacks and whites that
"broken homes influence delinquency by impeding the
transmission of antidelinquent definitions and increasing the
transmission of prodelinquent patterns" (1987, p. 835).
Their broken home variable measured the absence of either the
mother or the father from the respondent's household. As

mentioned above, in their reanalysis of the Gluecks' data comparing delinquent and nondelinquent adolescent males, Laub and Sampson (1988) found that significant effects exhibited by parental criminality and drunkenness on serious delinquency were largely mediated by family quality variables including attachment, supervision, and erratic or threatening parental discipline.

Using a longitudinal, nationally representative data set, McLeod et al. (1994) also investigated the extent to which family structure affects antisocial behavior. Specifically, they found that single-parent motherhood (both never-married and previously married) affected mother's use of alcohol, use of physical punishment, and frequency of affection. These variables in turn were related to antisocial behavior on the part of the children, such as disobedience, bullying, and destructiveness. While their measures of family quality also affected delinquency, McLeod et al. (1994) report that their family structure measures directly affected antisocial behavior. Living with a never-married mother led to antisocial outcomes for blacks while for whites antisocial behavior depended on living with a previously married mother.

Johnson's (1986) findings from a sample of high school sophomores also support the direct effect of family structure on delinquency. He reported that while white males with stepfathers self-report significantly more delinquent behavior than those from intact homes, attachment to a parent

did not mediate the relationship. Also, the relationship for white females between mother-only family structure and self-reported official trouble was not mediated by any variables, including the quality of parent-child relationship. Findings such as those by McLeod et al. (1994) and Johnson (1986) suggest either that family structure, as measured by broken homes or number of parents in the family, has some direct relation to delinquency.

Stepparents

As we have seen, there has been an increasing focus on variables measuring quality of family relationships and delinquency. Other researchers have maintained their focus on the impact of family structure, considering not just mother-only or single-parent families but also stepfamilies and other variations on the two-parent family. For example, Johnson said that "family structure, independent of the effects of the quality of parent-child relationships, predicts certain measures of delinquency for certain categories of adolescents" (1986, p. 78). He found that the presence of a stepfather tended to increase self-reported delinquency for males, while family structure in general made little difference for female self-reported delinquency.

Coughlin and Vuchinich (1996) reported that males from mother-only families and stepfamilies were both more than twice as likely to be arrested than those from families with two biological parents. Similarly, Dornbusch et al. (1985) found similar levels of male self-reported delinquency and

self-reported arrests in stepfamilies and mother-only
families. For females, those from two-parent stepfamilies
were less delinquent than those from mother-only families,
although they were still more delinquent than those living
with both biological parents. For males, they found similar
levels of delinquency in stepfamilies and mother-only
families. The authors concluded that their data provided
little support for the belief that two adults in the
household are more likely to prevent adolescent deviance than
are single parents.

Given the findings reported above from Johnson (1986),
however, the similar levels of male delinquency in
stepfamilies and mother-only families may result from
different influences. That is, males in stepfamilies may
experience conflict with their stepfathers while males in
mother-only families may have less parental contact. In
their review of the literature on broken homes, Wells and
Rankin (1985) found results on the stepparent issue to be
inconsistent and inconclusive.

Additional research

In this section a variety of research will be reviewed,
including studies of the delinquent effects of living with a
single mother compared to living with a single father and
investigations of whether the timing or nature of parental
disruption affect delinquency. Also reviewed here is
research on the effects of sociodemographic variables in the
relationship between family structure and delinquency. The

section will conclude with a look at several aggregate-level studies that address the question of how family structure is related to delinquency.

Comparisons about the delinquent consequences of mother-only families versus father-only families have been made infrequently due to the relatively small percentage of father-only families. Approximately 12 percent of the children living in single-parent families live with a father, and this figure was much lower a generation ago (U.S. Department of Commerce, Bureau of the Census, 1994a). But in their research review, Wells and Rankin concluded that "which parent is absent makes no difference in predisposing to delinquency" (1985, p. 260). However, Wells and Rankin noted that some researchers have reported an interaction between gender of parent and gender of child. That is, father-absence may be more harmful for males while mother-absence may be more harmful for females. Research in this area has yielded mixed results and the issue remains unsettled.

Some researchers have examined the extent to which the timing and the nature of family breakups are relevant to delinquent outcomes. Mednick et al. (1987), dividing timing of divorce into three levels based on the child's age, found that it did not relate to number of arrests. West (1982) found no difference in delinquency whether family disruption occurred early or later in the child's life. Similarly, using nationally representative, longitudinal data, Furstenberg and Teitler (1994) reported no difference in the

effects of divorce whether parents separated early in the child's life or later. Mednick et al. (1990), on the other hand, did find that instability during adolescence was a comparatively stronger predictor of young male crime than instability earlier in childhood. The authors used a more elaborate measure of stability by combining two scores on family constellation changes, one score for prior to age 12 and the other score for age 12 and older.

Turning to the nature of parental disruption, it might be reasoned that divorce or separation would have a greater influence on delinquency than the death of a parent. This might be the case because a divorce likely signifies conflict and stress in family relationships. Otherwise, as some research has suggested, the presence of stepparents may result in a greater likelihood of conflict, especially between sons and stepfathers. On the other hand, family stress and the arrival of stepparents may also follow the death of a parent. Stepparents aside, whatever the nature of family disruption, at least a temporary result will be a single-parent family. If delinquency is related to the number of parents in the household, then one might expect the nature of family disruption to have little effect on delinquency. In their analysis of previous research, Wells and Rankin reported, "The association with delinquency is slightly (albeit not significantly) stronger for families broken by divorce or separation than by death of a parent," (1991, p. 88).

Researchers have also examined the extent to which the relationship between family structure and delinquency varies by sex and race. Looking first at sex, Wells and Rankin (1991) report that research generally shows no consistent differences between males and females in the impact of family structure. Wells and Rankin noted that their use of broken homes as a measure of family structure was likely complicated as a result of their research being an analysis of previous studies, given the variety of ways by which broken homes may be measured. In contrast to the findings of Wells and Rankin, Gove and Crutchfield (1982) found that parental marital status had little impact on delinquency for females while males with unmarried parents were more likely to be delinquent than those from two-parent homes. Gove and Crutchfield's data differed from most self-report studies in that they measured parents' reports of their children's behavior. Using self-report data on youths aged 13 to 16, Thomas et al. (1996) also found that the deleterious effects of family structure were concentrated among males. Johnson (1986) found family structure to be more significant for males' self-reported delinquency as a result of the stepfather relationship. For females, Johnson said family structure did not appear to be as important. While girls from mother-only families were more likely to be officially delinquent, Johnson said this finding may reflect bias by school officials and police.

Other researchers reporting sex differences locate these differences within the mediating variables of family quality. Among her small sample of blacks at age 15, Farnworth (1984) found that while family structure had only a small impact on delinquency for males and no effect for females, variables based on parents' expectations and perceptions of the parent-child relationship were significant for females, suggesting that home socialization is more important for females than males. Pointing to a similar conclusion in their nearly all-white sample, Van Voorhis et al. (1988) found that the intervening effect of home quality in the relationship between broken homes and delinquency was significant for females across a wider variety of self-reported delinquency than was the case for males.

Although Wells and Rankin (1991) reported that previous research generally does not indicate racial differences in the relationship between broken homes and delinquency, Salts et al. (1995) found that family variables, including time spent away from the home and with friends, predicted self-reported violence among blacks and whites. For both racial categories, family structure was not a significant predictor of violence. Similarly, Smith and Krohn (1995) found in a longitudinal study of urban teens that family structure was not related to general self-reported delinquency for either blacks or whites, although it did have a direct effect on Hispanic delinquency. Overall, Smith and Krohn reported that family measures, including family structure and family

quality, explained about 10 percent of the variance in delinquency for both blacks and whites, and about 20 percent for Hispanics.

However, Rosen (1985) concluded that both family quality and family structure were related to official delinquency among blacks, whereas only structural variables were important for white delinquency. As mentioned previously, in their nationally representative, longitudinal study, McLeod et al. (1994) found that the particular measure of family structure affecting antisocial behavior depended on race. For blacks, antisocial outcomes were associated with living with a never-married mother. For whites antisocial behavior was related to living with a previously married mother. However, Thomas et al. (1996) found a higher rate of black self-reported delinquency among those in mother-only families that included father involvement. Whites, on the other hand, were more delinquent in mother-only families where there was no father involvement. Delinquency was reduced for blacks and whites living with two biological parents.

Matsueda and Heimer (1987) found for both blacks and whites that broken homes influence delinquency indirectly through delinquent definitions and delinquent peers, but the relationship is considerably stronger for blacks. Smith and Krohn (1995) found that parent-child attachment and the perception of parental control directly affected delinquency for blacks and whites, but they reported no indirect effects involving family structure as an exogenous variable.

Generally, although greater differences were found for
Hispanics, the relationships between family variables and
delinquency appear to be similar for blacks and whites.

A variety of ecological research has been carried out on
the relationship between family structure and delinquency,
contributing additional support for the association between
family structure and delinquency. However, any inference of
causality for corresponding individual-level measures would
not be warranted due to the use of aggregate measures in this
research. In a series of studies, Sampson and various
associates have shown a connection between family structure
and delinquency while identifying antecedent variables that
pertain to the relationship, such as inequality, joblessness,
sex ratio, and racial segregation. Sampson (1985) found that
family structure, measured by the percentage of female-headed
families in a neighborhood, strongly affected serious
property and violent victimization. Analyzing data from 171
U.S. cities, Sampson (1987) and Messner and Sampson (1991)
found that official rates of serious violence were strongly
affected by the percentage of female-headed households with
children under age 18, and more strongly affected by
percentage of female-headed households. Smith and Jarjoura
(1988) found that neighborhoods with larger percentages of
single-parent households had higher victimization rates of
violent crime (robbery and assault) and burglary.
Additionally, family structure helped explain the significant
relationship between poverty and rates of burglary. Using

census data for 158 cities, Shihadeh and Steffensmeier (1994) found that the percentage of female-headed black households had a significant effect on officially reported black violence. Female householding itself was affected by income inequality within black communities.

These studies and others suggest a relationship between family structure and delinquency using a variety of variables, while pointing to various antecedent variables that are associated with family structure. While much of the research reviewed earlier positions family structure as an exogenous variable that affects delinquency through various mediating variables, this research hypothesizes a weakened family structure as an endogenous variable intervening between economic difficulties and crime (see Petras and Davenport, 1991).

Conclusions

Wherever family structure is positioned in analytical models, throughout the literature review it has been seen that the broken-home measure of family structure is actually an imperfect measure of a more general family process and that the broken-home effect is an unclear one which interacts with other variables and depends upon context (Gove and Crutchfield, 1982; Hennessy et al., 1978). Such ambiguity necessitates a precise definition of family measures such as broken home and single parenthood, and the delineation of potentially intervening variables that are affected by a

broken home or single parenthood and in turn produce
delinquent outcomes for children.

One cannot conclude from the existing literature that
any one measure of family structure is the best. The only
conclusion is that the measure used should be clearly defined
and appropriate for the purposes of the research. The
present study will employ a measure emphasizing the
structural makeup of the family rather than the occurrence or
conditions of divorce. This measure is chosen with the
assumption that two parents will be better able than one
parent to provide a consistent learning environment for
children.

For example, Dornbusch et al. (1985) found that
adolescents in mother-only households are more likely to be
delinquent as a result of making decisions without parental
input (see also McLanahan and Booth, 1989). Using a similar
measure of family structure, Rosen (1985) found significant
relationships with delinquency for both blacks and whites.
Gove and Crutchfield (1982) included a similar measure in
their study that found family structure to be more important
for male delinquency, while family interaction was more
central for females. But for their equivalent family
structure measure, Van Voorhis et al. (1988) found no
significant effects on a variety of delinquency measures.
McLeod et al. (1994) also investigated single-parent families
compared to two-parent families, distinguishing between
previously married and never-married parents. Both single-

parent family types were related to antisocial behavior. Thomas et al. (1996) offered another approach to measuring family structure by the number of parents present, comparing families with two biological parents, single-mother families that had nonresident father involvement in child socialization, and single-mother families without nonresident father involvement. White males were more delinquent the lower the level of father's involvement, while black males were more delinquent where nonresident fathers were involved in the family.

Dornbusch et al. (1985) and other researchers have also indicated that the presence of stepparents may increase the likelihood of delinquency, especially in the case of stepfathers and their stepsons. Johnson (1986) distinguished between both number and type of parents, finding that males living with a mother and a stepfather were most delinquent while females in mother-only families were most delinquent. Coughlin and Vuchinich (1996) found that youths from stepfamilies and mother-only families were more likely to be arrested. These findings call for the coded separation of two biological parents from those two-parent families consisting of one biological parent and one stepparent.

Much of the research reviewed in this chapter points to the variables that intervene between family structure and crime and delinquency. Many researchers have called for the continued explication of these and other potentially intervening variables (e.g. Smith and Jarjoura, 1988; Wells

and Rankin, 1986). According to Van Voorhis et al. (1988),
family structure usually is considered to be an indirect
cause of delinquency, predisposing family members to other,
more direct influences such as lack of affection, poor
supervision, shortage of economic and time resources, and
limited opportunities for modeling, among others. Wells and
Rankin said, "Few if any analyses presume ... a direct and
automatic causal link. Rather, family structure affects
delinquent behavior through intervening interactional
processes (engendered by structural conditions)" (1986, p.
87). While acknowledging that the relationship between
family structure and delinquency is a weak one, Wells and
Rankin (1985) argue that it is consistent and there is a need
to clarify the process by which the family relates to
delinquency.

The present study will focus on social learning as
intervening processes between family structure and
delinquency. Specifically, it draws upon the social learning
theoretical perspective to explain the effects of family
structure on delinquent behavior. Various components of
social learning theory will be hypothesized to mediate the
relationship between family structure and delinquency. In
the next chapter, social learning theory will be discussed
and additional research focusing specifically on the theory
will be reviewed.

CHAPTER 3
SOCIAL LEARNING THEORY OF CRIME AND DELINQUENCY

The last chapter discussed a variety of research
findings that link family variables to delinquent behavior.
In this chapter, social learning theory will be discussed and
considered as a useful approach to understanding the
relationship between the family and the delinquent behavior
of adolescents. The theory is well suited to explaining the
relationship between family variables, including family
structure, and delinquency because it focuses on the process
of interaction, particularly within primary groups. The
family normally is the first primary group that individuals
encounter. "Social learning models emphasize the importance
of parents as reinforcers and models of socially appropriate
behavior. Parental availability, supervision, and affection
are important factors in influencing the effectiveness of
their modeling and reinforcement strategies," (1988, p. 239)
according to Van Voorhis et al. Moreover, the family
typically has a considerable impact on other primary groups
that gain significance later, such as the peer group (Jensen
and Rojek, 1992). Thus, it is reasonable to expect that
changes in family structure may affect youths via social
learning processes in their interaction with parents, and
subsequently, with friends. The nature of the social

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learning that occurs in these important primary groups may be
expected to significantly affect whether behavior is
conforming or delinquent.

Social Learning Theory

Social learning theory was developed by Akers and
Burgess (Burgess and Akers, 1966) as a reformulation of
Sutherland's (1947) theory of differential association.
Akers (1973; 1977; 1985; 1997; 1998) has continued to develop
and test the theory. Central to the theory is the idea that
delinquency is learned in interaction with others, primarily
within intimate, personal groups such as family and friends.
According to Sutherland, "A person becomes delinquent because
of an excess of definitions favorable to violation of law
over definitions unfavorable to violation of law" (1947, p.
6). Sutherland said that this process of differential
association varies by frequency, duration, priority, and
intensity. Thus, the commission of a criminal act results
from a complex ratio wherein the influence of criminal
patterns and definitions exceeds the influence of conforming
patterns.

Sutherland's theory was one of the first to suggest that
deviance results from the effects of environmental conditions
on biologically and psychologically normal individuals (Vold
and Bernard, 1986). According to Sutherland, "The process of
learning criminal behavior by association with criminal and
anti-criminal patterns involves all of the mechanisms that

are involved in any other learning" (1947, p. 7). If criminal behavior is learned as is other behavior, then Sutherland's theory of differential association also directs us toward the social context or structure (differential social organization as Sutherland would put it) in which learning takes place for a further explanation of crime and delinquency. Family structure would be one context that may indirectly affect delinquency via the process of differential association.

Burgess and Akers (1966) broadened Sutherland's differential association by integrating it with behavioral learning theory, particularly the concept of differential reinforcement, whereby behavior is conditioned by rewards and punishments. Their theory originally was called differential association-reinforcement, but now is usually referred to as social learning theory.

The theory is intended to apply to any form of deviant behavior, including criminal and delinquent behavior. "The basic assumption in social learning theory is that the same learning process, operating in a context of social structure, interaction, and situation, produces both conforming and deviant behavior" (Akers, 1998, p. 50). Akers said that the difference between conforming and deviant behavior lies in the balance of influences on behavior. Social learning theory focuses on four central concepts to account for these influences. These are differential association, definitions, imitation of models, and differential reinforcement. While

these four concepts influence conformity in one direction, in his central proposition of social learning theory Akers describes the way in which they combine to instigate and strengthen deviance in the other direction:

> The probability that persons will engage in criminal and deviant behavior is increased and the probability of their conforming to the norm is decreased when they differentially associate with others who commit criminal behavior and espouse definitions favorable to it, are relatively more exposed in-person or symbolically to salient criminal/deviant models, define it as desirable or justified in a situation discriminative for the behavior, and have received in the past and anticipate in the current or future situation relatively greater reward than punishment for the behavior. (Akers, 1998, p. 50; emphasis added)

Rewards and punishment are the alternate ways in which differential reinforcement is distributed. The four concepts and other aspects of the theory will be explained in greater detail below.

Differential Association

Differential association in social learning theory encompasses interaction with others in intimate primary groups, as well as in secondary groups and indirect association with reference groups of individuals throughout the community and the mass media. Modalities of association combine to determine the effects of various associations. "Those associations which occur first (priority), last longer (duration), occur more frequently (frequency), and involve

others with whom one has the more important or closer relationships (intensity) will have the greater effect" (Akers, 1994, p. 96). In addition to this interactional dimension there is a normative dimension of differential association, which more widely refers to the different patterns of norms and values to which individuals are exposed.

"Differential association refers to the process whereby one is exposed to normative definitions favorable or unfavorable to illegal or law-abiding behavior" (Akers, 1994, p. 96). Additionally, it is through differential association that one is exposed to other mechanisms of social learning, including models to imitate and differential reinforcement for criminal or conforming behavior. These three concepts-- definitions, imitation, and differential reinforcement--will be discussed next.

Definitions

Definitions are evaluative norms, attitudes, or orientations regarding a particular behavior as good or bad. A positive definition exists when behavior is considered good while a negative definition exists when behavior is seen as undesirable. A neutralizing definition exists when behavior is justified or excusable. This type of definition includes techniques of neutralization and rationalizations that are used to disclaim responsibility or fault.

Conventional definitions about criminal behavior are negative toward deviant behavior. However, the more one holds ideas favorable to crime or deviance, the more one is likely to engage in criminal or deviant behavior. In this case the definitions about criminal behavior are positive. Thus, the use of the terms positive and negative should not be mistaken as synonymous with conforming and deviant, respectively. For example, at the decisive moment a conforming person may define conformity as positive and deviance as negative while a nonconforming person may define deviance as positive and conformity as negative. More typically however, definitions favorable to crime and delinquency are "conventional beliefs so weakly held that they provide no restraint or are positive or neutralizing attitudes that facilitate law violation in the right set of circumstances" (Akers, 1994, p. 98).

Definitions are beliefs that may be general or specific. General beliefs include religious, moral, and other conventional ideas favorable to conformity and unfavorable to deviance or criminality (Akers, 1994). Specific beliefs are held about particular acts or types of acts. Thus, one may believe that it is wrong to do harm to others but that it is all right to harm those who are the source of frustration or disagreement.

Definitions are learned through imitation and reinforcement, and once learned, they serve as discriminative stimuli for conforming or deviant behavior. According to

Akers, "Discriminative stimuli are stimuli which become associated with reinforcement. In addition to the reinforcers, other stimuli are ordinarily present when behavior is reinforced--the physical surroundings, one's own feelings, others' behavior, one's own and others' spoken words, and so on" (1985, p. 49). Discriminative stimuli occur before or as the behavior occurs, signaling the actor as to the appropriateness of the behavior and whether reinforcement or punishment is forthcoming.

Imitation

Imitation is the process of acquiring social behavior, whether conforming or deviant, by observing and modeling the behavior of others. Models, like definitions, may be drawn from primary, secondary, or reference groups. Additionally, imitation may occur immediately, at some later time, or not at all. Imitation is a complex process as its likelihood of occurrence depends on the characteristics of the model as well as the model's observed behavior and the outcomes produced by that behavior. "[Imitation] is more important in the initial acquisition and performance of novel behavior than in the maintenance or cessation of behavioral patterns once established, but it continues to have some effect in maintaining behavior" (Akers, 1994, p. 99).

Differential Reinforcement

The primary learning mechanism in social learning theory is operant conditioning, or instrumental learning, wherein behavior is shaped by the stimuli which follow the behavior. Operant conditioning is distinguished from respondent conditioning, wherein behavior is shaped by antecedent or eliciting stimuli, in that it is "developed, maintained, and strengthened depending on the feedback received or produced from the environment" (Akers, 1985, p. 42). Thus, while a respondent is controlled by the preceding stimulus and unaffected by the outcome it creates for the environment, an operant is controlled by the stimulating reinforcement and punishment following or contingent on it.

Positive reinforcement occurs as rewards, such as approving words, money, or pleasant feelings, increase the probability that an act will occur or be repeated. The likelihood of an act occurring or being repeated also is increased through negative reinforcement, when one avoids unpleasant consequences. For example, a motorist who exceeds the speed limit will likely continue to do so, and perhaps to a greater degree, so long as a citation is not received. Punishment also may be positive or negative. Positive punishment occurs when unpleasant consequences are attached to a behavior, such as when the speeding motorist receives that citation. Negative punishment occurs when pleasant

consequences are removed. For example, a worker receives negative punishment when a paycheck is docked.

Deviant or conforming behavior may be continuously reinforced but is more likely reinforced on an intermittent schedule, the uncertainty of which helps account for the variety, complexity, and stability of behavior. Reinforcement depends on the values of those with whom one interacts, as behavior is regarded differently across time and place. Modalities of reinforcement--amount, frequency, and probability--affect the extent of reinforcement. The greater the amount of reinforcement for one's behavior, the more frequently it is reinforced, and "the higher the probability that behavior will be reinforced (as balanced against alternative behavior), the greater the likelihood that it will occur and be repeated" (Akers, 1994, p. 98).

Temporal Sequence and Reciprocal Effects in Social Learning Theory

Social learning theory has most often been posited as preceding delinquent behavior. However, Akers maintains that the relationship between social learning variables and delinquent behavior does not simply occur in one direction. Akers stresses that "social learning is a complex process with reciprocal and feedback effects" (1994, p. 99).

Akers (1998) explains how these reciprocal and feedback effects are integrated into social learning theory. First, association with family members and friends typically

precedes the commission of delinquent acts, and reinforcement, modeling, and exposure to definitions occur within these groups prior to the onset of delinquency. Second, after the initial event imitation becomes less important while the balance of the other social learning variables continue to be used in determining repetition. Third, actual consequences of the event (social and nonsocial reinforcers and punishers) affect the probability and frequency of repeated events. Consequences include the actual effects of the behavior itself, the actual reactions of others present at the time or who find out about it later, and the anticipated reactions of others not present or without knowledge of the behavior. Fourth, both the overt behavior and the definitions favorable or unfavorable to it are affected by these consequences, which in turn affect further behavior. Definitions, for example, may be applied retroactively as justification for a previous act. At the same time, such justification precedes future acts as it variably mitigates sanctioning (punishing reinforcement) by others or oneself. Finally, progression into more frequent or sustained behavior again occurs in the context of reinforcement, modeling, and definitions.

Differential association shares a complex relationship with delinquency, according to Akers (1998). Social learning theory recognizes that youths may choose to associate with friends based on a similarity in delinquent behavior that already exists. Similarly, youths confined for delinquent

offenses will have little choice but to associate with delinquent peers. However, because associations are typically formed around circumstances and attractions such as neighborhood proximity that have little to do with co-involvement in deviant behavior, delinquent behavior most often results from delinquent peer association (Akers, 1994). Akers (1998) concludes that there is both a tendency for persons to choose to interact with others based on behavioral similarities (known as "flocking" or "selection") and a tendency for persons who interact to have mutual influence on each other's behavior (known as "feathering" or "socialization"). Both are part of the social learning process and both are explained by the same variables.

Social Structure and Social Learning: The Case of the Family and Delinquency

Akers (1998) has presented a Social Structure-Social Learning (SSSL) theory of crime and delinquency. The theory basically assumes that social learning is the primary process linking social structure to individual behavior. It primarily proposes that "variations in the social structure, culture, and locations of individuals and groups in the social system explain variations in crime rates, principally through their influence on differences among individuals on the social learning variables" (Akers, 1998, p. 322). Social structural variables that have an effect on individual behavior include various broad measures of society and

community; common demographic variables such as age, sex, class, and race; and other more immediate variables such as family and peer group.

Social learning theory is useful in the explanation of the effects of family structure on delinquency because the family and peer groups are identified in the theory as the most significant primary groups implicated in differential association. Thus, the components of social learning theory may be presented as intervening variables between the social structural variable of family structure and the individual-level variable of delinquent behavior. Differences in the effects of family structure on rates of delinquency depend on the extent to which each type of family is able to "provide socialization, learning environments, and immediate situations conducive to conformity or deviance" (Akers, 1994, p. 101). For example, a single-parent family may be less likely than a two-parent family to provide a consistent learning environment, and a single parent may be less able than two parents to oversee children's behavior. More precisely, a two-parent family may offer greater opportunities for differential association, the transmission of values or definitions, the imitation of parental role models, and differential reinforcement for conforming behavior, compared to smaller family structures. The linking of family structure to delinquent behavior, therefore, can be seen as a special case of Akers' SSSL model. The present study is one way of testing the SSSL model, as it will focus

on social learning theory as a link between social structure and individual delinquent behavior by hypothesizing a mediating effect of social learning variables on the relationship between family structure and delinquency.

Research on Social Learning Theory

A variety of researchers writing on crime and delinquency have cited social learning theory as a valuable perspective for explaining deviance, and the findings of numerous studies have supported or are consistent with the theory (see Akers, 1998).

Social Learning Theory and Delinquency

Akers and various associates have demonstrated support for the relationship between all four social learning concepts and delinquency in a variety of studies, including tests of social learning theory by itself and in comparison with other theories (Akers, 1994).

Akers et al. (1979) provided a thorough test of the explanatory power of social learning theory in relation to self-reported alcohol and marijuana use and abuse among adolescents. A combined 15 social learning variables measuring all four concepts of social learning theory--differential association, definitions, differential reinforcement, and imitation--explained 55 percent of the variance in use of alcohol and 68 percent of the variance in use of marijuana in a sample of more than 3,000 adolescents.

For alcohol and marijuana abuse, the variance explained by the social learning variables was 32 percent and 39 percent, respectively.

Akers et al. (1979) distinguished between social differential reinforcement (actual and anticipated) and a second group of differential reinforcement measures which combined social with nonsocial factors. Comparing the five subsets of variables, differential association was most effective in explaining variance in alcohol and marijuana use and their abuse. Consistent with the findings of numerous other studies, the most important single variable for explaining both the use and abuse of alcohol and marijuana was differential peer association. For substance use, the second-most effective social learning concept was definitions, followed by the combined social and nonsocial subset of differential reinforcement measures, social differential reinforcement, and imitation. A similar ranking was found for abusers, although social-nonsocial reinforcement was more important than definitions among alcohol abusers. According to Akers et al., "In substance abuse the user comes more and more to respond to direct reinforcement, especially from the drug effects themselves" (1979, p. 650).

Of the items measuring definitions, the respondent's own approval or disapproval of use had the strongest effect on both alcohol and drug use, and drug abuse, over neutralizing definitions and attitudes about the law. For alcohol abuse,

attitudes about the law was more important. Of the items measuring social differential reinforcement, friends' rewarding or punishing reactions had a stronger effect on substance use than parents' rewards or punishment and deterrence items (being caught by parents or the police). Friends' reactions was also important for substance abusers, although marijuana abusers were equally concerned about the interference it would have on other activities such as school and athletics. Additionally, parental reactions was found to be curvilinearly related to abuse, with a lower probability of abuse being associated with parents who react moderately.

With the exception of imitation, four of the five subsets explained a substantial proportion of variance in both alcohol and marijuana use. The authors took these findings as support for the theory as a whole. "Friends provide social reinforcement or punishment for abstinence or use, provide normative definitions of use and abstinence, and, to a lesser extent, serve as admired models to imitate" (1979, p. 644).

Akers and Lee (1996) found that social learning theory explained adolescent smoking. Using five-year longitudinal data, measures of differential association, definitions, and differential reinforcement significantly affected future smoking. Also consistent with social learning theory, the authors identified reciprocal effects of smoking on differential association, although similar effects were weak or nonsignificant for definitions and differential

reinforcement. According to Akers and Lee, "As smoking behavior develops, it is shaped by association with peers, exposure to their normative definitions of smoking, and social reinforcement, but then over time, one's own smoking behavior comes to exert influence over patterns of association with friends" (1996, p. 336). Menard and Elliott (1994) identified reciprocal relationships between delinquent peer association, attitudes toward delinquency, and self-reported minor offending and index offending. However, the stronger causal direction was clearly indicated by the effects of social learning on delinquency.

Boeringer and Akers (1993) found that social learning variables also explained violent behavior in the form of sexual aggression among college males. They reported that social learning models, including measures of all four of the theory's central concepts, accounted for over 20 percent of the variance in sexually aggressive behavior. This outcome variable included nonphysical coercion, use of drugs or alcohol as a coercive sexual strategy, and attempted or completed rape with or without force. The social learning models also accounted for 40 to 55 percent of the variance in rape proclivity.

Additional support for social learning theory has come from other researchers. In a sample of ninth-grade students, Winfree et al. (1994) found that pro-gang attitudes contributed significantly to the prediction of several self-report crime measures, including alcohol and drug use,

property offenses, and violence. Analyzing eight waves of the National Youth Survey, Elliott (1994) found that delinquent peers, attitudes toward deviance and neutralizing definitions (Elliott's "peer normlessness") all had strong direct effects on the onset of violent offending.

Also using eight waves from the National Youth Survey, Esbensen and Elliott (1994) found that social learning variables accounted for the initiation of drug use. A measure of differential association, exposure to drug-using peers, was most strongly related to the initiation of alcohol, marijuana, and other drugs such as amphetamines, cocaine, and heroin. Differential reinforcement variables also were significant in their findings. The anticipated disapproval of friends decreased the likelihood of initiating alcohol and marijuana use, while the anticipated disapproval of parents decreased the likelihood of beginning alcohol use. A similar measure of the anticipated disapproval of parents was found to increase the likelihood of initiating alcohol use, although it also slightly decreased the probability of onset of marijuana and other drug use. Attitudes against drug use, a measure of definitions, decreased the probability of starting to use drugs such as heroin and cocaine. Another measure of definitions, attitudes against delinquent behavior, was not significant for drug use.

Esbensen and Elliott (1994) found that social learning variables generally were not as significant in terms of the termination of drug use, although exposure to drug using

peers reduced the likelihood of discontinuing the use of marijuana and other drugs, and negative attitudes toward delinquency increased the likelihood of termination of marijuana and other drugs. In summary, Esbensen and Elliott's results indicate variably significant effects on drug use for a variety of social learning concepts, including differential association, definitions, and differential reinforcement. Measures of neutralizing definitions were not significant.

Using two waves of the National Youth Survey, Warr and Stafford (1991) found that differential association, as measured by friends' delinquency, was strongly related to self-reported cheating, petty larceny, and marijuana use. Friends' delinquency also affected self-reported delinquency indirectly through respondents' definitions. Friends' attitudes, an indirect measure of differential reinforcement, indirectly affected delinquency through respondents' attitudes (definitions), but the direct relationships between friends' attitudes and delinquency were weak or nonsignificant.

Elliott et al. (1989), using the first three waves of the National Youth Survey, found involvement with delinquent peers to have the strongest effect on both general delinquency and index offending rates. Other theoretical variables affected both types of delinquency only indirectly through involvement with delinquent peers. Attitudes toward delinquency and neutralizing definitions ("normlessness" in

their usage), for example, were found to affect involvement with delinquent peers but had no direct effect on delinquency. Elliott et al. (1989) concluded in the test of their integrated theoretical model that learning theory provides the principal explanation for delinquency and substance use. Using waves three through five of the NYS, Menard and Elliott (1994) also found delinquent peer association to significantly affect minor offending and index offending, while the effects of attitudes toward delinquency were weak and inconsistent.

In this section it has been shown with a variety of cross-sectional and longitudinal research that social learning variables are related to various delinquent outcomes, including smoking, alcohol and drug use, general delinquency and violent behavior. Differential (peer) association, typically measured as having delinquent or substance using friends, emerges as having the clearest relationship with delinquency of the four social learning concepts. In nearly every study reviewed, friends' delinquency or substance use was most strongly related to one's own delinquency or substance use. Indeed, in their review of the empirical literature on broken homes and delinquency, Wells and Rankin note, "Peer influence constitutes the variable most consistently and strongly predictive of delinquency across a variety of studies" (1985, p. 265).

Various measures of definitions and differential reinforcement also indicate direct effects on delinquent behavior. A few studies suggest that some social learning variables affect delinquency indirectly through other social learning variables. For example, Elliott et al. (1989) found that measures of definitions, including neutralizing definitions, affected delinquent peer association. For Warr and Stafford (1991), however, delinquent peer association and the differential reinforcement of peers (friends' attitudes) affected one's own definitions.

Family, Social Learning Theory, and Delinquency

Research has demonstrated the intervening effects of social learning variables between various structural variables and delinquency. For example, Krohn et al. (1984) found that social learning variables explained much of the variance in self-reported alcohol and marijuana use across urban and rural community types. Akers and Lee (1997) reported that social learning variables explained the effects of age for adolescent marijuana users. Boeringer et al. (1991) found that social learning variables mediated the effects of fraternity membership on sexually aggressive behavior among college males. In this section research will be reviewed which links family variables, including family structure, to social learning variables and delinquency. Thereby it will be shown how social learning provides the process through which the social structure of the family has

an impact on individual behavior. "As the main conventional socializer against delinquency and crime, the family provides anti-criminal definitions, conforming models, and reinforcement for conformity through parental discipline," according to Akers (1998, p. 165). Later, he said, family socialization remains important as it competes against or is undergirded by socialization in peer groups.

Consistent with the findings reported above on the primacy of differential peer association, Elliott et al. (1985) found delinquent peer association to have a strong effect on self-reported serious and nonserious delinquency. Using the first three waves of the National Youth Survey, the authors also found that weak and antisocial relationships with family members and friends contributed to an increased involvement with delinquent peers. Definitions, measured as attitudes toward deviance, had little effect on delinquency. Neutralizing definitions did not have a direct effect on delinquency although the variable was associated with an increased involvement with delinquent peers.

Heimer (1997), also using the first three waves of the National Youth Survey, found that definitions relating to interpersonal violence were associated with subsequent violent delinquency among males. Definitions mediated the delinquent effect of concurrent association with delinquent peers, which mediated the effect of prior parental supervision of friendships. Patterson and Dishion (1985) likewise suggested that parents' monitoring practices

contribute to the parents' failure to discipline antisocial or delinquent behavior and to their lack of control over a child's association with delinquent peers. Applying social learning principles with an emphasis on the roles that parental reinforcement and punishment play in socialization, Patterson and Dishion found that parental monitoring had a direct effect in reducing male delinquency, as well as an indirect effect by ways of delinquent peer association and social skills. According to Patterson and Dishion, "The parents' failure to track provides ample opportunity for the child to engage in delinquent acts and to seek out deviant peers, who in turn further exacerbate the problem" (1985, p. 75).

Warr (1993) also reported a strong relationship between association with delinquent peers and self-reported delinquency. His findings showed that the strength of this relationship was significantly reduced by the quantity of time spent with one's family. Compared with what has been seen to be the typical sequencing, in this case the variables representing family and social learning are inversely ordered. Warr concluded that peer influence may be overcome only by avoiding the company of delinquent peers altogether. "This may be achieved either by inhibiting the formation of delinquent friendships in the first place (as attachment to parents seems to do) or by reducing the time that adolescents spend with their delinquent friends" (1993, p. 259).

The studies reviewed to this point have employed family variables relating to family quality. A few studies have investigated the relationships between family structure, social learning, and delinquency. In a cross-sectional test of differential association theory using Richmond Youth Project data, Matsueda and Heimer (1987) found that delinquent peer association had the largest total effect on self-reported male delinquency. Their findings showed that broken homes, measured as mother or father absence, influence delinquency by directly fostering an excess of prodelinquent definitions. Matsueda and Heimer said that broken homes also influence delinquency more indirectly "by attenuating parental supervision, which in turn increases delinquent companions, prodelinquent definitions, and ultimately, delinquent behavior" (1987, p. 836).

Heimer and Matsueda (1994) found that delinquent peer association and attitudes toward delinquency both were related to self-reported delinquency among males. In a longitudinal analysis using the first three waves of the National Youth Survey (NYS), they reported that these social learning variables (at wave two) mediated the effect of family structure (measured as father absence at wave one) on serious and nonserious delinquency (at wave three). Heimer (1997), also using the first three waves of the NYS, found support for the mediating effects of social learning on male violence. Her findings indicated that broken homes (those without both biological parents present) were related to less

supervision, which led to an increase in subsequent delinquent peer association and then violent definitions, which finally led to subsequent violent delinquency.

Using longitudinal data from Houston-area junior high schools, Chen and Kaplan (1997) found that delinquent peer association and definitions, including attitudes toward deviance and neutralizing definitions, mediated the effect of family structure on self-reported delinquency. Measured as having both biological parents present, family structure also maintained a modest, direct effect on delinquency. Chen and Kaplan reported that separate analyses yielded similar results for both serious delinquency and general delinquency, which included drug use, theft, and violence. A unique feature of their research was the eight to 16 years that elapsed between their measurement of the independent variables and delinquency. This arrangement permitted the investigation of the effects of family structure and the mediating variables in early adolescence on deviance in young adulthood.

The literature reviewed in this section has demonstrated, both cross-sectionally and longitudinally, the mediating effects of social learning variables between family variables, including family structure, and delinquency. Again, delinquent peer association emerges as the dominant social learning variable, playing a significant mediating role in each of the studies reviewed. Definitions also played a significant intervening role in about half of these

studies, sometimes mediating the effect of delinquent peer association on delinquency. The self-reported delinquency measures in these studies included nonserious and serious general delinquency, and in one case, violent delinquency.

Hypotheses

Based on the empirical findings of the literature reviewed to this point and the reasoning of social learning theory, hypotheses may be deduced about the concepts to be investigated. Below are four hypotheses specifying the expected relationships between family structure, social learning, and delinquency.

(1) Research has demonstrated the importance of families as socializing agents both in the initial stages of life and continuing through childhood, adolescence and into adulthood. Although less clear, research also has suggested that a reduced number of adult socializers increases the likelihood of a reduced quality of socialization for a child. This relationship is suggested by empirical evidence showing that children from single-parent homes are more delinquent than children from two-parent homes.

Therefore it is first hypothesized that family structure predicts delinquency. Family structure as used here refers to the number and type of parents in the household, as contrasted to measures focusing on the occurrence of a divorce or the absence of a particular parent. Specifically, youths living with a single parent are expected to be more

delinquent than youths living with two parents. It also is expected that youths living with neither parent in a non-parental household will be more delinquent than youths living with a single parent. Additionally, youths living with one biological parent and one stepparent are predicted to have delinquency levels between those of youths living with two biological parents and those living with one parent.

(2) The literature review has shown that family structure has an impact on social learning variables. For example, Heimer and Matsueda (1994) found that father absence increased the level of definitions favorable to delinquency and increased the extent of associations with delinquent peers. Other studies suggested that a reduced number of parents resulted in reduced supervision, which resulted in an increase in association with delinquent peers and the adaptation of delinquent attitudes. Social learning theory recognizes the family as an important source of both conforming and deviant reinforcement, models, attitudes, and association. The theory would suggest that living with fewer parents would mean a weakened parental association with conforming patterns, the absence of parental reinforcement, the reduction of parental influence, and the loss of parental role models. Thus, single parents will be less likely than two parents to instill conforming attitudes and discourage delinquent ones, guide their children toward conforming associations and away from deviant ones, and to reinforce conformity and punish delinquency.

Accordingly, it is hypothesized that family structure affects the social learning process conducive to delinquency. It is expected that having fewer biological parents will be correlated with scores on social learning measures in the delinquent direction, such as having more delinquent friends and adhering to delinquent attitudes.

(3) Perhaps the strongest of the research findings regarding social learning theory was that delinquent peer association leads to delinquent behavior. Research also indicated that having prodelinquent definitions increases the likelihood of delinquency. Social learning theory holds that one who has an excess of delinquent associations, adheres to an excess of prodelinquent definitions, is reinforced toward delinquent behavior and away from conformity, and has delinquent role models will be more likely to engage in delinquency.

Specifically, it is hypothesized that the more delinquent one's friends are, and the more delinquent friends one has, the more likely the respondent will also be delinquent. Similarly, the more delinquent definitions one possesses, the more likely he or she will be to engage in delinquent behavior. Moreover, the weaker the punishment for delinquent behavior, and the stronger the reinforcement for it, the greater the likelihood of delinquency.

(4) Akers proposes that social learning theory is capable of explaining how social structures such as the family shape individual behavior (1997; 1998). The last

section of the preceding literature review cited several studies that demonstrated the mediating role of social learning theory. In particular, differential peer association and definitions were shown to be important mediating concepts between family structure and delinquency.

Therefore the fourth and final hypothesis, and the one most central to the present research, is that social learning variables will mediate the effect of family structure on delinquency. Specifically, the introduction of social learning variables into the analysis will reduce the strength and significance of the relationship between family structure and delinquency. It is expected that an attenuated family structure will be associated with an increase in delinquent friends, an increase in delinquent attitudes, and an increase in rewards for delinquency along with a decrease in punishment for delinquency. It is expected that these conditions of social learning will be associated with an increase in delinquent behavior, and will substantially reduce or render nonsignificant the relationship between family structure and delinquency.

The Present Research

The intent of the present research is to further investigate the mediating effects of social learning between family structure and delinquency. This will be accomplished by expanding upon previous research in a variety of ways. Where social learning variables have been included in

previous research on this topic, they typically have appeared one or two at a time and usually as part of another theoretical construction. As an explicit test of social learning theory, this study will employ six social learning measures of three of the theory's four central components to provide a test of more complete social learning/social structure models.

Secondly, most of the previous research in this area has combined nonserious and serious offenses into a general delinquency measure. Indeed, measures of serious delinquency are much less common in self-report studies than nonserious or general delinquency measures. One exception is the research by Heimer (1997), reviewed above, that focuses on violence. The present study will employ an index of serious delinquency combining serious property and violent offenses.

Thirdly, the present study will expand on previous research by using a different measure of family structure. Previous studies in this area have used dichotomous measures based on the presence of two biological parents or on father absence. Here family structure will be based on the number of parental figures in the household, be they biological or stepparents. The distinction is noteworthy since this type of measure differentiates between single-mother families and two-parent, mother-stepfather families. Given the importance of parental monitoring or supervision suggested by several of the studies reviewed in the previous section, and a presumed difference between the monitoring ability of a single parent

versus two parents, the number of parental figures in the household may have significant consequences for social learning and delinquency.

Finally, the present study differs from previous research by using more recent longitudinal data on males and females. While a few of the studies cited above employed the first three waves of the National Youth Survey, this study will use waves three through five of the NYS.

Data

The purpose of the present study is to conduct a nationally representative, longitudinal test of social learning as a mediating process between family structure and serious, self-reported delinquency. The study employs wave one (1976) and waves three through five (1978, 1979, 1980) of the National Youth Survey (Elliott et al., 1985; Elliott et al., 1989). Hereafter, waves three through five will be referred to as years one through three, respectively. Use of the first wave, 1976, is limited and separately identified (see below).

In addition to the extensive work of Elliott and his associates, various waves of the NYS data set have been used by different researchers. These include Heimer (1997), Paternoster and Brame (1997), Heimer and Matsueda (1994), Lauritsen (1993), Warr (1993), and Warr and Stafford (1991). For the present research, tape data on the NYS are obtained through the Inter-University Consortium for Political and Social Research (ICPSR).

The NYS uses a panel design with a national probability sample of households in the continental United States based

upon self-weighting, multistage, cluster sampling. The
sample contained 2,360 eligible youth aged 11-17 in 1976, the
year of the initial wave. Of those eligible, 1,725 (73%)
agreed to participate in the study and completed interviews,
which were conducted for each year in the first three months
of the following year. Elliott et al. (1989) report that the
representativeness of the sample with respect to reported
delinquency and other variables was not significantly
affected by nonparticipating youth or by panel attrition.

The age range for the present study is 13-19, as
determined by the waves selected and as a result of excluding
those respondents aged 18 and over at the time of family
structure measurement in year one or year two. The dependent
variable of delinquent behavior is variously measured in year
two (1979) and year three (1980). The effective sample size
for the present study ranges from 1,020 to 1,200 (see Table
3, below). There are roughly 250 respondents at each age.
Further details regarding the design of the present study and
sampling distributions will be presented below.

Elliott and Ageton (1980) note that self-report measures
and official statistics typically offer different findings on
delinquent behavior and its social correlates. While both
types of data reveal significant age and sex differences, the
magnitude of these differences is often smaller with self-
report data than with official statistics. Also, self-report
studies generally have found fewer differences in delinquent

behavior by race or class than are found in studies of official delinquency.

Based on these differences in findings, self-report data have long been considered useful for eliminating the potential bias of official statistics wherein minority or lower-class youths are more likely to be labeled delinquent (see Hirschi, 1969). Likewise, youths from broken homes have been found to be overrepresented in official statistics (Jensen and Rojek, 1992; Wells and Rankin, 1985) and it may be that these reflect systematic disparities in official decisions about youth from broken homes versus those from intact homes. Thus, the self-report survey would be a more valid approach to the study of the relationship between family structure and delinquency.

However, Elliott and Ageton (1980), using wave one of the NYS, found significant race and class differences with self-reported general delinquency. They attributed these findings to the extended frequency range used on their delinquency measures. Hindelang, Hirschi, and Weis (1979) similarly suggest that the discrepancy between official statistics and self-report surveys, with respect to sex, race, and class, is largely illusory, at least for the relatively minor types of delinquency typically found in self-report data. They concluded that the apparent differences between self-report data and official statistics are a result of these methods effectively measuring different behavior. Addressing these claims, Akers et al. (1981)

distinguished between serious and nonserious self-reported delinquency, and between low- and high-frequency offenders. Their findings suggested that previous self-report studies were correct in their findings of nonsignificant differences in delinquency across sociodemographic variables such as race and class.

Whatever the extent of discrepancy between the two methods of data collection, one inherent strength of self-report surveys is their ability to avoid the potential bias of which official statistics may be susceptible. They also are useful for the measurement of "hidden" crime and delinquency that escapes the notice of the justice system altogether and therefore does not show up in police reports. Self-reports also permit the avoidance of a self-selective sample of all delinquent youths wherein the dependent variable has little variance. On the other hand, self-report surveys have been criticized for a number of weaknesses involving issues of reliability and validity.

With the National Youth Survey, Elliott and his associates attempted to overcome the weaknesses common to self-report data. Elliott et al. (1989) suggest that while self-report measures generally appear to be reasonably valid and reliable, the reporting of trivial events may be the greatest threat to the validity of self-report surveys. Typically a general delinquency measure will include many trivial acts that result in the unrepresentativeness of the measure. The NYS includes serious index offenses of property

and violent delinquency and these are the exclusive domain of this study. The reporting of trivial events is likely to be a smaller problem when measuring strictly the most serious offenses.

Another threat to the validity of self-reports is recall error. The NYS has recall periods of one year with the Christmas holiday providing specific, memorable reference points for the respondents. Additionally, the serious delinquency that is the focus of this study may be better remembered than less serious acts. The year-long periods also eliminate the possibility of seasonal variation.

Another threat to validity is deliberate falsification. Elliott et al. (1989) report that much evidence on self-report measures indicates that this is a relatively rare problem. Akers et al. (1983), for example, used a biochemical measure of smoking behavior to confirm that respondents reported their smoking quite accurately. Given the present focus on serious delinquency, deliberate falsification may reasonably be considered a greater potential problem. The NYS personal interviews typically took place in the privacy of the respondents' homes. Privacy and confidentiality were protected and guaranteed by official certificates from the United States government.

A variety of methods were used to analyze the validity of delinquency scales from wave one through six of the NYS (Elliott et al., 1989). These included an analysis of detailed follow-up questions, an analysis of the proportion

of trivial responses that did not qualify as delinquency, and a comparison of self-reported delinquency with arrest records. Each of the methods used generally confirmed the validity of the delinquency scales. These scales included a variety of item groupings based on type and seriousness of offense. The felony theft scale and the felony assault scale, comprised of a combined seven offenses, contained five of the six serious delinquency measures included in the present study.

The reliability of self-report measures is generally well established (Elliott et al., 1989; Hindelang, Hirschi, and Weis, 1979). Using the test-retest method of reliability assessment on wave five (1980) of the NYS, Huizinga and Elliott (1986) reported the highest reliability for index offenses. Elliott et al. reported that for their delinquency scales from waves one through six of the NYS, "reliabilities were adequate to excellent for the total sample and all demographic subgroups (e.g., test-retest reliabilities ranged from .7 to .9 in the total sample)" (1989, p. 15).

Measurement of Variables

Delinquency Index

The dependent variable is self-reported delinquent behavior (SRD), combining self-reports of violent and property offenses. The violent offenses include personal

attack, sexual assault, and use of force on another person.
The property offenses include motor vehicle theft, theft
involving a value of $50 or more, and breaking into a
building or vehicle. The delinquency index is a three-point
scale coded as follows: no reported property or violent
offenses (0); at least one reported occurrence of either
property or violent delinquency (1); and at least one
occurrence of both property delinquency and violent
delinquency (2). See Appendix A for a complete description
of the delinquency items. Alternatively coding delinquency
0-6, representing the total number of delinquent activities
engaged in by respondents, produced no more variation in the
dependent variable and yielded a weaker correlation with
family structure. Subsequent analyses indicated that
findings were not significantly different for this variation
of the dependent variable compared to the three-category,
ordinal coding described above and employed in the analyses
reported below.

The scale used here as a measure of serious delinquency
follows the constructions of Elliott and other researchers
employing NYS data. For example, the three items measuring
property delinquency were included by Elliott and Huizinga
(1983, p. 156) in their "felony theft" category, while the
three items measuring violent delinquency were used by
Elliott (1994, p. 3) to characterize "serious violent
offenders."

Family Structure

The primary independent variable is the respondent's
family structure, using a measure focusing on the parental
makeup of his or her household. Recall from the literature
review that a measure of family structure stands in contrast
to measuring the occurrence or effects of divorce.
Furthermore, the particular way in which the family structure
measure will be coded here looks at not simply father absence
but at the number of parents living in the household.

Responses to the question, "With whom are you now
living?" (LIV) were used to measure family structure (see the
question and response categories in Appendix A). The
responses were collapsed into three categories: (1) living
with at least two parents, either two biological parents or
one biological parent and one stepparent (original codings 1,
4, 5, 14, and 15; see Appendix A); (2) living with a single-
parent, either male or female (original codings 2 and 3); and
(3) living with neither parent (original codings 7, 8, 9, and
16). This third category includes living with a boyfriend or
girlfriend, living alone, living with a roommate, or living
with nonparental relatives. Several response categories,
such as "mother and other relative(s)," were deleted in order
to maintain clear distinctions between the recoded
categories. Deleted original codings include 6, 10, 11, 12,
13, and 17. Age is limited to 17 and younger at the time
family structure is measured (usually in year one, but in

year two for Model 2) so that the measure would not be complicated by respondents moving away from home at age 18.

These three categories of living with two parents, with one parent, and living with no parents are coded and treated as a three-point ordinal scale of an underlying continuum of family structure ascending from the most complete, parent-intact family to the most incomplete, parent-absent family. Initially this was intended as a four-point scale differentiating between two-parent family living arrangements with two biological parents and those with one biological parent and one stepparent. However, analysis showed that there were no differences in delinquency between youth living with two biological parents and those living with a biological and a stepparent ($r=.05$, $p=.16$). Further, consideration was given to whether the sex of the parent in single-parent families would make for any difference in delinquent behavior by the children. Consistent with previous research (Wells and Rankin, 1985), no difference in delinquency for those respondents living with only a father compared to those living with only a mother ($r=-.02$, $p=.77$) was found in the NYS data. Thus, separate categories for sex of single parent were not included in further analyses. There were too few cases in these data to investigate the effects of male or female respondents living with a single parent of the same sex compared to that of a different sex. But the data did show that of those living with a single

parent, 85 percent of males lived with their mother and 92
percent of females lived with their mother.

In a longitudinal analysis spanning three years, any
change in family structure in the second year may presumably
have a significant impact on delinquent outcomes in the third
year. However, preliminary correlational analyses determined
that in these data there were few changes in family structure
in the time period included. Family structure at year one
was strongly correlated with family structure at year two
($r=.78$, $p<.01$) and at year three ($r=.71$, $p<.01$), suggesting
little change in the family structure variable over time.

Moreover, comparisons were made of the effect on
delinquency of whatever changes in family structure did
occur. A variable, change in family structure, was created
based on the change in the number of parents in the household
from year one to year three. Change in family structure was
coded as one=increase in number of parents in the household,
2=no change in number of parents in the household, and
3=decrease in number of parents in the household. This
variable was unrelated to subsequent delinquent behavior
($r=.006$, $p=.89$).

Social Learning Variables

Six measures are employed to represent three major
concepts in social learning theory: differential
reinforcement, definitions, and differential association.
The fourth major component of social learning theory,

imitation or modeling, is not included in this study due to the absence of an appropriate measure in the National Youth Survey. See Appendix A for a listing of the NYS items used here as social learning variables.

Differential reinforcement

Recall that differential reinforcement refers to the balance of rewards and punishment that is received in response to behavior, and it depends on the values of those with whom one interacts. The two groups of people with whom youths most often interact are their parents and their peers. Thus, one variable will be used to measure the differential reinforcement of each of these two groups. The measures tap the reaction that the respondent anticipates from their parent or peer in response to given delinquent acts, be that reaction approving (rewarding) or disapproving (punishing). Variables based on the same measures from the National Youth Survey, although with varying scale items, were used by Esbensen and Elliott (1994).

The two reinforcement variables are: the anticipated parental reactions for one's own delinquency (APR) and the anticipated friends' reactions for one's own delinquency (AFR). Both variables are measured on five-point Likert scales with 1 being strong disapproval and 5 being strong approval. The APR index is an eight-item scale, measuring the respondent's anticipated parental reactions to the following acts: stealing something worth less than $5, selling hard drugs, using marijuana, stealing something worth

more than $50, hitting or threatening to hit someone without
any reason, using alcohol, purposely damaging others'
property, and breaking into a vehicle or building to steal
something (alpha = .85). The AFR index includes nine items,
measuring the respondent's anticipated reactions of friends
to the following acts: stealing something worth less than
$5, selling hard drugs, using marijuana, stealing something
worth more than $50, hitting or threatening to hit someone
without any reason, using alcohol, pressuring or forcing
someone sexually, purposely damaging others' property, and
breaking into a vehicle or building to steal something (alpha
= .90).

Items measuring actual consequences experienced by
youths committing delinquent behavior are not available in
the NYS data set. However, both APR and AFR are adequate
measures of differential reinforcement in that they measure
anticipated rewards or punishments that would follow from
delinquent acts. The more a respondent anticipates, for
example, that breaking into a vehicle or stealing something
will be met with tolerance or even approval by parents and
peers (rewards), then the more likely the respondent will be
to commit those acts. The more the respondent anticipates
parental or peer disapproval (punishment) for those acts, the
more likely the respondent will be to refrain from
delinquency.

Definitions

In the last chapter definitions were defined as
evaluative norms, attitudes, or orientations regarding a
particular behavior as good or bad. A definition is positive
or negative, depending on whether behavior is seen as
appropriate or undesirable, respectively. Alternatively, a
neutralizing definition exists when behavior is considered
justified or excusable. The respondent's attitudes toward
delinquent acts (ATT) and the respondent's attitudes toward
interpersonal violence (IPV) measures one's positive/negative
definitions. Similar variables based on the same measures
from the National Youth Survey were used in Heimer (1997),
Heimer and Matsueda (1994), Matsueda and Heimer (1987), and
Elliott et al. (1985). The respondent's endorsement of
deviant neutralizations (EDN) measures neutralizing
definitions. Similar variables based on this measure were
used by Esbensen and Elliott (1994) and Elliott et al.
(1985). (See Appendix A for a complete description of all
three measures of definitions.)

Attitudes toward delinquent acts are measured on a four-
point Likert scale with 1 being "very wrong" and 4 being "not
wrong at all," while IPV is measured on a five-point Likert
scale with 1 being strong disagreement and 5 being strong
agreement. Attitudes toward deviant neutralizations also is
measured on a five-point Likert scale with 1 being strong
disagreement and 5 being strong agreement.

The ATT index includes ten items: purposely damaging others' property, using marijuana, stealing something worth less than $5, hitting or threatening to hit someone without any reason, using alcohol, breaking into a vehicle or building to steal something, selling hard drugs, stealing something worth more than $50, getting drunk, and giving or selling alcohol to minors (alpha = .89).

The IPV index includes six items: it is all right to beat up people if they started the fight, it is all right to beat up people who call you names, television violence is effective, it is all right to beat up people if they make you mad, it is all right to hit someone to get them to do what you want, and physical force prevents others from walking over you (alpha = .80).

Items measuring attitudes toward delinquent acts ask respondents whether particular delinquent acts are right or wrong. Items measuring attitudes toward interpersonal violence likewise ask respondents whether they agree with statements that are favorable to violent behavior. Both of these items serve as measures of definitions in that they measure attitudes attached by respondents to particular behavior. Respondents who hold attitudes positive or favorable to delinquency will be more likely to commit delinquent acts while those who hold attitudes negative or unfavorable to delinquency will be less likely to commit delinquent acts. Attitudes toward delinquency focuses on definitions about specific acts, while attitudes toward

interpersonal violence focuses on general definitions about violence and deviance.

The EDN index includes seven items: lying to teachers is sometimes necessary to avoid trouble, to win at school it is sometimes necessary to play dirty, lying is okay if it keeps friends out of trouble, gaining the respect of friends sometimes means beating up other kids, a willingness to break rules is necessary to be popular with friends, lying to parents is sometimes necessary to keep their trust, and it may be necessary to break some of your parents' rules in order to keep friends (alpha = .82).

Endorsement of deviant neutralizations is measured by asking respondents about their agreement with attitudes justifying deviant behavior. Respondents who are in greater agreement with justified deviance or delinquency will be more likely to engage in delinquency themselves. Attitudes toward deviant neutralizations focuses on general definitions about violence and deviance.

Differential association

Recall from the last chapter that differential association refers to interaction with others in primary and secondary groups as well as in broad reference groups via the mass media. Initial, enduring, frequent, and close associations have greater influence on one's behavior than those which lack these characteristics. The peer group is an example of a primary group in which youths typically form associations characterized to some extent by these traits.

Those who associate with others who steal or behave violently, for example, will receive normative definitions favorable to delinquent behavior and be more likely themselves to engage in this type of behavior. Associations also provide the opportunity for other social learning mechanisms, such as reinforcement, to have an impact.

Thus, a variable of the respondent's association with delinquent peers will be used to measure differential association. Research literature consistently shows that this variable is one of the strongest predictors of juvenile delinquency. Other studies using a similar variable based on the same measure from the National Youth Survey include Heimer (1997), Heimer and Matsueda (1994), Warr (1993), Matsueda and Heimer (1987), and Elliott et al. (1985).

A five-point Likert scale is used to measure delinquent peer association (DPA) with 1 being "none of them" engaging in delinquent acts and 5 being "all of them." The DPA index includes ten items: purposely damaging others' property, using marijuana, stealing something worth less than $5, hitting or threatening to hit someone without any reason, using alcohol, breaking into a building or vehicle to steal something, selling hard drugs, stealing something worth more than $50, getting drunk, and giving or selling alcohol to minors (alpha = .88). (See Appendix A for a complete description of the variable.)

Sociodemographic Variables

Six additional variables are considered, including age,
sex, race, class (as measured by income and education), and
family size. Any examination of the relationship between
family structure and delinquency without consideration of
these variables might result in the oversight of significant
subgroup differences. The common sociodemographic variables
of age, sex, race, and class were selected for their widely
known impact on delinquency. Number of siblings is a less
common variable but some studies have suggested that it has
an impact on delinquency (Hirschi, 1969). Correlations
indicating the strength and significance of the relationship
between self-reported delinquency and each of the
sociodemographic variables may be found below in Table 1, on
pp. 93-4. Each sociodemographic variable is discussed in
greater detail below. (See Appendix A for a description of
the original items employed in this section.)

Age

The relationship between age and delinquency is well
known in criminology and can be seen across various types of
data collection. Generally, delinquent behavior increases
near the start of the teen years, peaks at around age 17, and
declines through the 20s as offenders age-out. Both official
statistics and self-report data show that serious criminal
behavior peaks around ages 16 and 17 (Siegel and Senna, 1991;
Elliott, 1994).

The results of a cross-sectional analysis of NYS data at wave three were consistent with previous research, showing ages 16-18 to be significantly more delinquent than ages 13-15. The relationship was weaker in a longitudinal analysis but there remained significant differences in delinquency by age cohort. When coded at year one as ages 13-15 (1) and ages 16-17 (2), age was significantly correlated with delinquency in years two through three (r=.06, p=.049). An interval-level coding of age yielded a weaker correlation with delinquency. Therefore, age is coded dichotomously as indicated and entered into the equations.

Sex

A variety of data indicate that males are more delinquent than females. Official statistics typically show that the ratio for serious violent offending by males to that of females is approximately eight to one, and for property crime approximately four to one in favor of males (Siegel and Senna, 1991). Sex differences in self-report data typically have been smaller than those seen in official statistics, while remaining significant (Elliott and Ageton, 1980). The current research confirms this literature. These data show that males accounted for 76 percent of all delinquents while comprising 52 percent of the sample. Self-reported delinquency, in years two through three, and sex were found not to be independent of each other (r=-.18, p<.01). Therefore sex is included as a control variable, coded males (1) and females (2).

Race

   While official statistics indicate that there are
significant differences by race, some self-report studies
have shown race differences to be virtually nonexistent,
suggesting the presence of bias in the justice system (Siegel
and Senna, 1991). However, using wave one of the National
Youth Survey (NYS), Elliott and Ageton (1980) found
significant race differences for self-reported general
delinquency and for crimes against property, due to blacks
reporting higher frequencies than whites. Later, Elliott
(1994) reported that serious, self-reported violence differed
very little by race. In the present research, blacks
accounted for 16 percent of the sample. Self-reported
delinquency, in years two through three, and race were found
to be significantly correlated ($r=.09$, $p<.01$). Race is
retained as a control variable, coded white (1) and black
(2).

Class

   Class differences also tend to be more common in
official statistics while self-report studies often report
smaller class differences or none at all, again suggesting
the presence of bias in the justice system (Siegel and Senna,
1991). As class may be measured in a variety of ways,
conclusions about its effects on delinquency may be harder to
draw, compared to conclusions about race differences.
Nevertheless, as they found with race, Elliott and Ageton
(1980) reported that class differences may be more

substantial than has been suggested by many self-report studies, due to lower-class youths reporting higher frequencies than middle-class youths. Using NYS waves one through five (1976-1980), Elliott and Huizinga (1983) likewise found that middle class youth of both sexes are less likely to be involved in serious offenses, and they commit fewer offenses when they are involved, compared to lower and working classes. Both of these studies using NYS data employ the Hollingshead (1958) index of social class.

The present study employs both family income level and parents' educational attainment as measures of class. Both of these measures were obtained from the initial NYS wave in 1976, which included a survey of parents in addition to the youth survey that would be repeated for subsequent waves. Thus, these measures were obtained from a time two years earlier than the other sociodemographic variables, which were measured at wave three. It is expected that this earlier measurement will not be problematic because family income and parental education level are variables that are not likely to change significantly in that time span. Income was coded as follows: low ($10,000 and less) (1); medium ($10,001-30,000) (2); and high (more than $30,000) (3). Twenty-four percent of the sample reported low family income, 61 percent reported medium income, and 15 percent reported high income. Income was found to be significantly correlated with delinquency in years two through three ($r=-.10$, $p<.01$), indicating that the

two variables are not independent. Therefore family income is retained as a control variable.

Parents' educational attainment was coded as follows: high (approximating college graduate) (1); medium (approximating high school graduate) (2); and low (approximating less than high school graduate) (3). The scale combines measures of both mother's and father's schooling. Sixteen percent of the respondents' parents scored high on education, 44 percent scored medium on education, and 40 percent had low levels of education. Similar to family income, education measured in 1976 was found to be significantly related to respondents' delinquency in years two (1978) through three (1979) (r=.09, p<.01) and is retained as a control variable.

Number of Siblings

The influence of siblings on delinquent outcomes has received relatively little attention although the number of siblings may be an important variable for a variety of reasons, including decreased parent-child interaction. Where there are a greater number of children in a household, parent-child interaction might be expected to decrease as it does where there are fewer parents. Farnworth (1984) reported no significant effects for family size and family density on a wide range of delinquent behavior among black youths. But in a review of the literature, Loeber and Stouthamer-Loeber (1986) reported significant effects for even small differences in family size. They suggest,

however, that it is not simply the number of siblings, but having delinquent siblings that is related to delinquency. Indeed, Brownfield and Sorenson (1994) found that the relationship between number of siblings and self-reported delinquency was fully accounted for by exposure to delinquent siblings. Consistent with this finding, the current data showed no significant relationship between number of siblings and general delinquency in years two through three (r=.04, p=.09). As for the two measures of class, number of siblings had to be obtained from the parental survey at wave one (1976). The variable was coded into categories of one (16 percent of the sample), two or three (53 percent of the sample), and four or more (31 percent of the sample). Based on its weak correlation with delinquency, number of siblings is excluded from further analysis.

Table 1 presents a correlation matrix for the variables employed throughout this research: delinquency, family structure, six social learning variables, and six sociodemographic variables. The correlations are based on the measurement in Analysis Plan 3 (see below). The first column shows the correlations between delinquency and each of the independent variables, indicating significant correlations with family structure and all six social learning variables, as expected. Also as expected, the table indicates significant correlations between family structure and each of the social learning variables. Among the sociodemographic variables, all but number of siblings are

Table 1. Correlation Matrix

	SRD	APR	AFR	ATT	IPV	EDN	DPA
Delinquency SRD	1.0	.20 **	.31 **	.25 **	.26 **	.25 **	.34 **
Parents' Reactions APR	.20 **	1.0	.49 **	.44 **	.33 **	.38 **	.28 **
Friends' Reactions AFR	.31 **	.49 **	1.0	.69 **	.52 **	.62 **	.67 **
Delinq. Attitudes ATT	.25 **	.44 **	.69 **	1.0	.41 **	.56 **	.35 **
Violence Attitudes IPV	.26 **	.33 **	.52 **	.41 **	1.0	.57 **	.51 **
Neutralizations EDN	.25 **	.38 **	.62 **	.56 **	.57 **	1.0	.51 **
Delinq. Peers DPA	.34 **	.28 **	.67 **	.66 **	.35 **	.51 **	1.0
Family Structure LIV	.13 **	.20 **	.14 **	.06 *	.11 **	.08 *	.12 **
Age	.06 *	.12 **	.16 **	-.27 **	-.03	.07 *	.29 **
Sex	-.18 **	-.19 **	-.29 **	-.15 **	-.41 **	-.23 **	-.14 **
Race	.09 **	.14 **	.01	-.12 **	.15 **	.04	-.08 *
Income	-.10 **	-.14 **	-.07 *	.07 *	-.14 **	-.03	-.00
Education	.09 **	.13 **	.05	-.04	.18 **	.05	.04
Siblings	.04	.05	.02	-.04	.06	.04	-.02

* significant at the .05 level
** significant at the .01 level

Table 1--continued

	LIV	AGE	SEX	RACE	INC	EDUC	SIBS
Delinquency SRD	.13 **	.06 *	-.18 **	.09 **	-.10 **	.09 **	.04
Parents' Reactions APR	.20 **	.12 **	-.19 **	.14 **	-.14 **	.13 **	.05
Friends' Reactions AFR	.14 **	.16 **	-.19 **	.01	-.07 *	.05	.02
Deling. Attitudes ATT	.06 *	.27 **	-.15 **	-.12 **	.07 *	-.04	-.04
Violence Attitudes IPV	.11 **	-.03	-.41 **	.15 **	-.14 **	.18 **	.06
Neutralizations EDN	.08 **	.07 *	-.23 **	.04	-.03	.05	.04
Deling. Peers DPA	.12 **	.29 **	-.14 **	-.08 *	-.00	-.04	-.02
Family Structure LIV	1.0	.05	-.06	.36 **	-.31 **	.21 **	.00
Age	.05	1.0	-.06	-.02	.08 **	.03	-.06 *
Sex	-.06	-.02	1.0	-.04	.05	-.04	.01
Race	.36 **	.08 **	.05	1.0	-.34 **	.28 **	.09 **
Income	-.31 **	-.04	.05	-.34 **	1.0	-.29 **	-.02
Education	.21 **	.03	-.04	.28 **	-.29 **	1.0	.12 **
Siblings	.00	-.06 *	.01	.09 **	-.02	.12 **	1.0

* significant at the .05 level
** significant at the .01 level

seen to be significantly correlated with delinquency, as
discussed above.

Plan of Analysis

The intent of the analysis is to test four hypotheses
about the relationships among the variables described above,
and thereby determine whether there is support for the
mediating effect of social learning theory in the
relationship between family structure and delinquent
behavior. It has been hypothesized that family structure
affects delinquent behavior (Hypothesis 1); that family
structure is related to various social learning variables
(Hypothesis 2); that social learning variables predict
delinquent behavior (Hypothesis 3); and that social learning
variables mediate the relation of family structure to
delinquent behavior (Hypothesis 4). Figure 1 illustrates the
hypothesized relationships between the three levels of
variables. The hypotheses will be tested using four
longitudinal data analysis plans (see Table 2.)

```
                        Social
    Family    ------>   Learning   ------>  Delinquency
    Structure           Variables
```
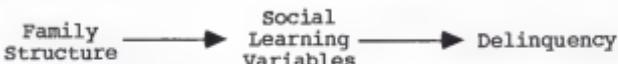
Figure 1. Theoretical Model of Social Learning
           Variables Mediating the Effects of Family
           Structure on Delinquency

The term "analysis plan", or simply "plan", will be used
throughout to refer to the four different ways in which the

longitudinal data will be used to test the hypotheses. The analysis plans specify in which years each of the variables is measured. Each of the four hypotheses will be tested with the data specified in each plan, providing for replication tests of the hypotheses. As indicated below, with each of these plans the first three hypotheses are tested with zero-order correlations, while the fourth and main hypothesis is tested with multivariate regression models. Most of the statistical analysis therefore is centered on testing Hypothesis 4. This will entail both OLS and logistic regression models and testing separate models for male and female respondents.

Table 2. Analysis Plans for Family Structure, Social Learning, and Delinquency: Years in which Dependent, Independent, and Sociodemographic Variables are Measured

	Plan 1	Plan 2	Plan 3	Plan 4
S-R Delinquency	1979	1980	1979–80	1980
Family Structure	1978	1979	1978	1978
Social Learning				
Diff. Reinf.				
Parents' Reactions	1978	1979	1978	1979
Friends' Reactions	1978	1979	1978	1979
Definitions				
Deling. Attitudes	1978	1979	1978	1979
Violence Attitudes	1978	1979	1978	1979
Neutralizations	1978	1979	1978	1979
Diff. Assoc.				
Deling. Peers	1978	1979	1978	1979
Sociodemographics				
Age	1978	1979	1978	1978
Sex	1978	1979	1978	1978
Race	1978	1979	1978	1978
Education	1976	1976	1976	1976
Income	1976	1976	1976	1976

(1) Analysis Plan 1: In this plan, family structure, social learning, and the sociodemographic variables will all be measured at year one (1978) and the delinquency variables will be measured at year two (1979), providing for a test of one-year lagged effects of the variables.

(2) Analysis Plan 2: All of the independent variables will be measured at year two (1979) and the dependent variables will be measured at year three (1980). This allows a replication of the one-year lagged effects but for a different set of years.

(3) Analysis Plan 3: In this plan measurement of the dependent variable will be summed across two years instead of just one year. In this case social learning, family structure, and the other independent variables will be measured in the same year (1978) while the dependent variable is measured across years two and three (1979 and 1980). This changes measurement of the dependent variable and will provide a greater frequency of delinquency in the sample. Given the relatively small amount of self-reported delinquency in this sample, extending measurement an additional year will result in a less skewed dependent variable and thereby provide an additional check on the reliability of the findings.

(4) Analysis Plan 4: In Plan 4, family structure will be longitudinally separated from the intervening social learning variables. Family structure will be measured at

year one (1978), the social learning variables will be measured at year two (1979), and the dependent variable will be measured at year three (1980). This will provide the most precise temporally ordered plan in which family structure precedes the social learning variables, which in turn precede self-reported delinquency. Such a temporal separation of variables is important given the theoretical predictions about the causal relationships between the variables as stated in the fourth hypothesis. If family structure affects delinquency to a significant degree through the mediating effects of social learning variables, measuring the three concepts separately across three consecutive years should most closely match the empirical analysis with the theoretical design.

The first three hypotheses posit bivariate relationships between the three levels of variables—family structure, social learning, and delinquency. The hypothesized relationships between these sets of variables must be established first because they are presupposed in Hypothesis 4. Using the SAS statistical package, crosstabulations and zero-order correlations will be employed to test the first three hypotheses.

Also using SAS, ordinary least squares (OLS) multiple linear regression will be used to test Hypothesis 4, which states that the social learning variables will mediate the effect of family structure on delinquency, controlling for sociodemographic variables. Multiple regression permits the

prediction of values on the dependent variable based on knowledge of values on independent variables. It also permits the assessment of the relative degree to which each independent variable accounts for variance in the dependent variable. Thus, the procedure will also allow for the detection of the mediating effects as hypothesized. To the extent that the standard regression assumption of normal distribution is violated, logistic regression analyses will provide a further investigation of these data.

Support for social learning theory will be indicated if the introduction of social learning variables into the regression models reduces the main or initial effect of family structure on delinquency; the more substantial the reduction the greater the support for the theory.

The distributions of the dependent variable, delinquency, for each of the four analysis plans are given in Table 3. Note that the sample size in Plan 2 is substantially reduced compared to the other three plans. This results from there being one less cohort of respondents under age 18 at year two, when age and family structure were measured in that plan, compared to year one, the time when those variables were measured for the other three plans. The number of missing cases in each plan results from listwise deletions of nonresponses on any variable in any year (Berk, 1983). Plan 3 indicates a greater frequency of delinquency because delinquent events are summed across two years instead of one.

Table 3. Percentage Distributions of Self-Reported Delinquency (SRD)

	Plan 1	Plan 2	Plan 3	Plan 4
Zero SRD	90%	91%	86%	91%
Low SRD	8	7	11	7
High SRD	2	2	3	2
N	1,031	806	986	1,006
Missing	138	121	183	163
Sample Size	1,169	927	1,169	1,169

Hypothesis One: Family Structure and Delinquency

Crosstabulations provided a look at the distribution of
delinquency across family structure, indicating that the
variables are related in the hypothesized direction.
Respondents living with two parents were more likely than
those living with a single parent or no parents to be
nondelinquent. Table 4 provides a summary of the
crosstabulations for family structure and delinquency for
each of the four analysis plans, indicating the percentage of
respondents in each type of family structure who were
nondelinquent. While the crosstabulations indicate little
difference in delinquent outcomes between those respondents
living with a single parent and those living with no parents,
they generally suggest the presence of a linear relationship
between family structure and delinquency.

Table 4. Crosstabulation Summary: Percent Nondelinquent
by Family Structure for Each Analysis Plan

	Family Structure		
	Two-parent	Single-parent	No-parent
Plan 1 % Nondelinquent	92%	81%	82%
Plan 2 % Nondelinquent	93	86	84
Plan 3 % Nondelinquent	88	77	76
Plan 4 % Nondelinquent	92	87	86

Table 5 presents zero-order correlations for self-reported delinquency and family structure for each of the four plans. The zero-order correlations indicate moderate support for the first hypothesis, that delinquency is related to differences in family structure; delinquency is least likely to be found in two-parent families and most likely to be found in living arrangements with no custodial parents present.

Table 5.   Zero-Order Correlation Coefficients for Self-Reported Delinquency (SRD) and Family Structure in Four Analysis Plans

	Family Structure
Plan 1 SRD	.12 **
Plan 2 SRD	.10 **
Plan 3 SRD	.13 **
Plan 4 SRD	.08 **

* significant at the .05 level
** significant at the .01 level

Hypothesis Two: Family Structure and Social Learning

Table 6 presents zero-order correlations for family structure and the social learning variables for each of the four analysis plans. For each plan, the table indicates weak to moderate relationships between family structure and the social learning variables, providing support for the second hypothesis. That is, a family structure of fewer parents is associated with higher scores (in the delinquent direction) on the measures of social learning theory. Anticipated

parental reactions (APR), anticipated friends' reactions (AFR), and delinquent peer association (DPA) were most strongly correlated with family structure. For example, those respondents living with fewer parents were more likely to anticipate less disapproving parental and peer reactions to delinquent acts. Those respondents living with fewer parents also were more likely to associate with delinquent peers.

Table 6.   Zero-Order Correlation Coefficients for Family Structure and Social Learning Variables in Four Analysis Plans

	Plan 1	Plan 2	Plan 3	Plan 4
		Family Structure		
Social Learning				
Diff. Reinf.				
APR[a]	.20 **	.12 **	.20 **	.13 **
AFR[b]	.14 **	.11 **	.14 **	.11 **
Definitions				
ATT[c]	.06 *	.04	.06 *	.06 *
IPV[d]	.11 **	.09 *	.11 **	.12 **
EDN[e]	.08 **	.10 **	.08 **	.08 *
Diff. Assoc.				
DPA[f]	.12 **	.19 **	.12 **	.13 **

  * significant at the .05 level
 ** significant at the .01 level

 a anticipated parental reactions
 b anticipated friends' reactions
 c attitudes toward delinquency
 d attitudes toward interpersonal violence
 e endorsement of deviant neutralizations
 f delinquent peer association

Hypothesis Three: Social Learning and Delinquency

Table 7. Crosstabulation Summary: Self-Reported Delinquency
(SRD) across Averaged Social Learning Scale Items
for Each Social Learning Variable

			Social Learning Variables			
	APR[a]	AFR[a]	ATT[b]	IPV[c]	EDN[c]	DPA[d]
Zero SRD	98.0%	83.1%	59.0%	69.8%	74.4%	69.5%
Low SRD	94.6	65.8	36.2	50.0	60.9	45.7
High SRD	91.7	54.5	30.5	42.1	48.3	37.2

[a] anticipated "disapproval" or "strong disapproval" of
  delinquency
[b] defines delinquent act as "very wrong"
[c] "disagrees" or "strongly disagrees" with delinquency
[d] number of delinquent peers: "none of them"

Crosstabulations provided a look at the distribution of
delinquency across the social learning variables, indicating
that the variables are related in the hypothesized direction.
The percentages reported in Table 7 were obtained by
averaging for each value of the delinquency variable the
percentage of responses in the nondelinquent direction (as
indicated in the footnotes) on all of the items that make up
each of the social learning variables (see Appendix A). For
example, the first cell of the table indicates that 98
percent of nondelinquents and 92 percent of those scoring
high on delinquency anticipated parental disapproval or
strong disapproval of delinquency. These findings suggest a
linear relationship, with nondelinquent youths being more
likely to score in the nondelinquent direction on social
learning measures, such as having fewer delinquent friends or

anticipating parental or peer disapproval of delinquent acts. These findings are based on the measurement of delinquency across two years and the measurement of social learning in the preceding year.

Table 8 presents zero-order correlations for the social learning variables and self-reported delinquency for each of the four analysis plans. The table indicates a strong relationship between the two sets of variables. All six social learning variables are significantly correlated with delinquency in the expected direction. Also as expected, delinquent behavior is most strongly related to differential peer association in each plan.

Table 8. Zero-Order Correlation Coefficients for Self-Reported Delinquency and Social Learning Variables in Four Analysis Plans

	Plan 1	Plan 2	Plan 3	Plan 4
		Self-Reported Delinquency		
Social Learning Diff. Reinf.				
Parents' Reactions	.22 **	.16 **	.20 **	.16 **
Friends' Reactions	.29 **	.29 **	.31 **	.28 **
Definitions				
Delinq. Attitudes	.25 **	.30 **	.25 **	.26 **
Violence Attitudes	.25 **	.23 **	.26 **	.24 **
Neutralizations	.26 **	.24 **	.25 **	.23 **
Diff. Assoc. Delinq. Peers	.35 **	.36 **	.34 **	.32 **

* significant at the .05 level
** significant at the .01 level

Hypothesis Four: Family Structure, Social Learning, and Delinquency

Thus far, we have seen support for the first three bivariate hypotheses in that delinquency is related to both family structure and the social learning variables, and that the social learning variables are related to family structure. This brings us to the fourth and major hypothesis, which states that social learning variables will mediate the relationship that has been demonstrated between family structure and delinquent behavior. The testing of this hypothesis involves a series of ordinary least squares (OLS) multiple regression analyses. These analyses are shown for each of the four analysis plans in Tables 9 through 12.

The tables present standardized estimates of delinquency regressed first on the social learning variables (a), and then with added sociodemographic variables (b). Results are shown in both full and reduced forms. The full models include all of the independent variables regardless of significance while the reduced models include family structure and the sociodemographic and social learning variables found to be significantly predictive of delinquency in the full models. Thus, the reduced models provide a clearer look at the social learning and sociodemographic variables that significantly affect delinquency.

Recall from Table 5 that the zero-order correlations between family structure and delinquency were modest but statistically significant. If the data fit the hypothesis,

in each regression analysis the net effect of family
structure on delinquency should be less than the zero-order
effect. When the social learning variables are entered into
the regression models, the effect of family structure on
delinquency should be reduced toward zero and become
nonsignificant.

Table 9. Family Structure, Social Learning, and Delinquency:
One-Year Lagged Analysis Plan (1) with Self-
Reported Delinquency Measured in Year Two (N=1,031).

	Full Models		Reduced Models	
	(a)	(b)	(a)	(b)
Family Structure	.04	.02	.05	.05
Social Learning				
Parents' Reactions	.11 **	.09 **	.10 **	.11 **
Friends' Reactions	-.00	-.02		
Delinq. Attitudes	-.05	-.02		
Violence Attitudes	.12 **	.08	.13 **	
Neutralizations	.04	.04		
Delinq. Peers	.28 **	.28 **	.27 **	.30 **
Sociodemographics				
Age		-.00		
Sex		-.07 *		-.10 **
Race		.02		
Education		.02		
Income		-.05		
	R^2=.15	R^2=.16	R^2=.15	R^2=.15

* significant at the .05 level
** significant at the .01 level

Table 9 presents the results for Plan 1, in which the family structure and social learning variables were measured at year one and delinquency was measured at year two. Recall from Table 5 that the zero-order correlation for family structure and delinquency was .12 (p<.01). Note that in each model the net effect of family structure on delinquency is reduced considerably and rendered nonsignificant, thus providing support for Hypothesis 4.

Table 9 also indicates the relative strength of the independent variables. Among the social learning variables, anticipated parental reactions (APR), attitudes toward interpersonal violence (IPV), and delinquent peer association (DPA) significantly mediated the relationship between family structure and delinquency, although IPV was rendered nonsignificant when the sociodemographic variables were included in the model. Among the sociodemographic variables only sex was significant, suggesting that family structure has less effect (net of the social learning effects) on delinquent behavior among boys than it does among girls.

Table 10 presents the results for Plan 2, in which the family structure and social learning variables were measured at year one and delinquency was measured at year three. Recall from Table 5 that the zero-order correlation for family structure and delinquency in Plan 2 was .10 (p<.01). As for Plan 1, in each model the net effect of family structure on delinquency is reduced considerably and rendered nonsignificant, again providing support for Hypothesis 4.

Among the social learning variables, delinquent peer association (DPA) and attitudes toward interpersonal violence (IPV) were significant in reducing the net effect of family structure.

With the addition of the sociodemographic variables to the model, delinquent peer association and age had the only significant effects on delinquency. However, the observed

Table 10. Family Structure, Social Learning, and Delinquency: One-Year Lagged Analysis Plan (2) with Self-Reported Delinquency Measured in Year Three (N=806)

	Full Models		Reduced Models	
	(a)	(b)	(a)	(b)
Family Structure	.05	.04	.02	.02
Social Learning				
Parents' Reactions	–.00	–.01		
Friends' Reactions	.01	–.00		
Deling. Attitudes	.08	.10		
Violence Attitudes	.10 *	.07	.14 **	
Neutralizations	.03	.02		
Delinq. Peers	.27 **	.28 **	.31 **	.36 **
Sociodemographics				
Age		–.07 *		
Sex		–.05		
Race		.03		
Education		.05		
Income		.04		
	R^2=.16	R^2=.17	R^2=.15	R^2=.13

* significant at the .05 level
** significant at the .01 level

effect of age is in the opposite direction than might be expected, indicating when the effects of other variables are controlled by entering them in the full regression model that younger adolescents were actually more delinquent than older teens. This is an unusual finding and suggests that the age effects in this sample are uncertain enough that they deserve a closer look. A crosstabulation of age and delinquency revealed that the levels of delinquent involvement for younger teens was very close to that of older adolescents. For whatever reason, the age variable in Plan 2--the only plan in which age had a significant negative effect--does not perform reliably. Accordingly, even though its net effect is significant, the variable was omitted from the corresponding reduced model (b).

Table 11 presents the results for Plan 3, in which the family structure and social learning variables were measured at year one and delinquency was measured cumulatively across years two and three. Recall from Table 5 that the zero-order correlation for family structure and delinquency in Plan 3 was .13 (p<.01). Again, the net effect of family structure on delinquency was reduced in models which included the social learning and sociodemographic variables. Although family structure remained significant in the reduced models, the degree to which the strength of the effect was reduced in these models and in the full models may be taken as support for Hypothesis 4. Among the social learning variables, delinquent peer association (DPA) and attitudes toward

interpersonal violence (IPV) were significant in reducing the net effect of family structure on delinquency. As in Analysis Plan 1, sex was the only significant sociodemographic variable, suggesting again that family structure has less effect (net of the social learning effects) on delinquency among boys than it does among girls.

Table 11. Family Structure, Social Learning, and Delinquency: Two-Year Lagged Analysis Plan (3) with Self-Reported Delinquency Measured in Years Two and Three (N=986)

	Full Models		Reduced Models	
	(a)	(b)	(a)	(b)
Family Structure	.05	.03	.07 *	.07 *
Social Learning				
Parents' Reactions	.05	.04		
Friends' Reactions	.07	.06		
Deling. Attitudes	−.04	−.01		
Violence Attitudes	.15 **	.10 *	.17 **	.13 **
Neutralizations	−.01	−.01		
Deling. Peers	.25 **	.26 **	.27 **	.27 **
Sociodemographics				
Age		−.02		
Sex		−.08 *		−.09 **
Race		.04		
Education		.05		
Income		.01		
	R^2=.15	R^2=.16	R^2=.14	R^2=.15

* significant at the .05 level
** significant at the .01 level

Table 12 presents the results for Plan 4, in which the measurement of the three sets of variables was temporally ordered across years one through three with family structure measured in year one, social learning in year two, and delinquency in year three. Recall from Table 5 that the zero-order correlation for family structure and delinquency

Table 12. Family Structure, Social Learning, and Delinquency: Temporal Sequence Analysis Plan (4) with Self-Reported Delinquency Measured in Year Three (N=1,006)

	Full Models		Reduced Models	
	(a)	(b)	(a)	(b)
Family Structure	.02	−.00	.03	.04
Social Learning				
Parents' Reactions	.02	.02		
Friends' Reactions	.01	−.01		
Delinq. Attitudes	.07	.11 *		.13 **
Violence Attitudes	.09 *	.04	.12 **	
Neutralizations	.01	.00		
Delinq. Peers	.26 **	.27 **	.31 **	.26 **
Sociodemographics				
Age		−.05		
Sex		−.06		
Race		.06		
Education		.04		
Income		.02		
	R^2=.14	R^2=.15	R^2=.14	R^2=.13

  * significant at the .05 level
 ** significant at the .01 level

in Plan 4 was .08 (p<.01). In each model the net effect of family structure on delinquency is reduced considerably and rendered nonsignificant, again supporting the hypothesis that social learning variables mediate the effects of family structure on delinquency. Among the social learning variables, delinquent peer association (DPA) and attitudes toward interpersonal violence (IPV) were significant in reducing the net effect of family structure. With the addition of the sociodemographic variables to the model, delinquent peer association and attitudes toward delinquency (ATT) had the only significant impact in reducing the net effect of family structure on delinquency.

Generally, analyses of data in all four analysis plans provided support for Hypothesis 4. That is, social learning, even when taking into account sociodemographic variables, reduced the effect of family structure on delinquency. In every case the net effect of family structure on delinquency was lower than the zero-order effect; in most cases the net effect of family structure was rendered nonsignificant and in some cases disappeared. Delinquent peer association (DPA) consistently had the strongest net effect on delinquency, ranging from r=.26 to .28 and in each case highly significant (p<.01). Attitudes toward interpersonal violence (IPV) also had a significant net effect on delinquency in every plan, while anticipated parental reactions (APR) significantly affected delinquency in Plan 1 and attitudes toward delinquency (ATT) significantly affected delinquency in Plan

4. Among the sociodemographic variables, sex had a significant net effect on delinquency in Plans 1 and 3. A further investigation into the impact of sex on the relationship between family structure and delinquency will be carried out below. The findings indicate that it is through these variables that the effect of family structure on delinquency is mediated.

Social learning variables theoretically reflect the same underlying process. Therefore, one would expect them to be intercorrelated. Moreover, prior research has found and the present research finds that they are intercorrelated. Therefore, there is some cause for concern regarding the possibility of collinearity among these variables. The problem of collinearity arises when two or more predictor variables are very highly correlated with each other and thereby distort measures of explained variance and other coefficients. However, the correlation matrix presented in Table 1 suggests that while the social learning variables are strongly related, the magnitude of the correlations suggests that the data are not beset by the collinearity problem. Nevertheless, SAS collinearity diagnostics conducted on the data failed to uncover any serious collinearity problem among the explanatory variables (see Belsley et al., 1980).

Additional Analyses

Structural Effects of Sociodemographic Variables

The regression analyses presented above begin with
family structure as a single independent variable, then add
social learning variables to the equation, and finally add
sociodemographic variables as control variables. Ordering
the regression models in this way leaves open the question of
what structural role the sociodemographic variables may play
and whether their effects on delinquency may also be mediated
by the social learning variables. To answer this question a
separate regression analysis was conducted, using data from
Analysis Plan 3 (see Table 19 in Appendix B).

Delinquency was first regressed on family structure
alone in the tests of Hypothesis 4; here delinquency is first
regressed on the sociodemographic variables alone. Findings
show that two of these variables, sex (beta=-.17, p<.01) and
education (beta=.07, p<.05), exert significant effects on
delinquency. Next, family structure is added to the
equation. While education drops out of the model, the
variable of sex persists with significant effects.
Additionally, family structure exerts a significant,
independent effect on delinquency (beta=.09, p<.01). In the
next model, the added social learning variables particularly
mediate the delinquent effects of family structure while also
having a mediating effect on the sociodemographic variables.

That is, the effect of family structure is weakened and rendered nonsignificant, and the effect of sex is considerably weakened. Among the social learning variables, attitudes toward interpersonal violence and delinquent peer association have significant net effects on delinquency.

From these findings it may be concluded that two of the sociodemographic variables, sex and education, do exert structural effects on delinquency as does family structure. Further, as observed above in the case of family structure (and is seen again in this analysis), the social learning variables, namely delinquent peer association and attitudes toward violence, have a mediating effect on the relationship between the structurally located sociodemographic variables and delinquent outcomes.

Logistic Regression

The OLS regression models employed above to test Hypothesis 4 were conducted on a sample including both males and females. Given the lower level of delinquency among females relative to males (see Table 14, below), using a combined sample of females and males decreases the level of delinquency and produces a greatly skewed distribution on the dependent variable in the overall sample compared to that of delinquency among males only. As indicated above in Table 3, from nine to 14 percent of the respondents in the combined sample reported any delinquent behavior. Where the dependent variable is highly skewed, the standard regression assumption

of normal distribution is violated. Logistic regression permits the use of multivariate analysis without the assumption of a normal distribution by modeling how a proportion of the dependent variable, rather than the mean, depends on the independent variables (e.g. Sampson and Laub, 1993).

Additional analyses are conducted for Analysis Plans 1 through 4 using logistic regression and a dichotomous recoding of the dependent variable. Delinquency is now coded as follows: no reported property or violent offenses (0); at least one reported occurrence of either property or violent delinquency (1). Logistic regression findings consistent with the preceding OLS regression findings would indicate that the latter were not altered by the skewness of the dependent variable.

Table 13 presents standardized estimates for delinquency regressed on family structure (1), with social learning variables in the model (2), and with sociodemographic variables in the equation (3). Model (2) in the table shows that the effect of family structure on delinquency is reduced from beta=.17 (p<.01) to .07 (p=.22). As hypothesized the effect of family structure is mediated by the social learning variables. The effects are reduced toward zero and become nonsignificant. As was the case in the OLS analysis, delinquent peer association (DPA) and attitudes toward interpersonal violence (IPV) have the strongest effects on delinquency while anticipated parental reactions (APR) also

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has a significant effect on delinquency. The addition of
sociodemographic variables further reduces the net effect of
family structure on delinquency (beta=.02, p=.78), with sex
being the only one of these variables to significantly affect
delinquency (beta=-.22, p<.01).

Table 13. Family Structure, Social Learning, and
           Delinquency: Analysis Plan 1 Using Logistic
           Regression (N=1,029)

	(1)	(2)	(3)
Family Structure	.17 **	.07	.02
Social Learning			
Parents' Reactions		.15 *	.11
Friends' Reactions		.14	.11
Deling. Attitudes		-.01	.04
Violence Attitudes		.27 **	.19 *
Neutralizations		.10	.09
Deling. Peers		.27 **	.31 **
Sociodemographics			
Age			.04
Sex			-.22 **
Race			.11
Education			-.02
Income			-.10
	X²=11.5 1 d.f.	X²=131.3 7 d.f.	X²=146.1 12 d.f.

* significant at the .05 level
** significant at the .01 level

Logistic analyses also were conducted for Plans 2
through 4, and these produced similar findings. In Plans 1

through 3, a significant net effect of family structure on
delinquency was weakened and rendered nonsignificant by the
addition of the social learning variables and the control
variables. In Plan 4, although family structure by itself
did not have a significant net effect on delinquency
(beta=.09, p=.11), its effect was reduced when social
learning variables were added to the model. Anticipated
friends' reactions (AFR) had a significant effect on
delinquency in Plan 3, while attitudes toward delinquency
(ATT) significantly affected delinquency in Plan 4.
Delinquent peer association and attitudes toward
interpersonal violence were significant social learning
variables in each of the analysis plans. Among
sociodemographic variables, in Plans 2 through 4 sex
significantly affected delinquency. As in the OLS regression
analysis, age had a significant, negative effect on
delinquency in Plan 2. Again, it is concluded that age is
performing unreliably here given the contrary findings in
crosstabulation analysis. The complete tabulated results of
these logistic analyses are presented in Tables 20 through 22
in Appendix B.

The classification analysis procedure in SAS provides an
intuitively appealing way to summarize the results of a
logistic regression model (Hosmer and Lemeshow, 1989). A
crosstabulation is created with the dependent variable,
delinquency, and a dichotomous independent variable whose
values are derived from the predicted logistic probabilities.

Thus, the table provides a comparison of predicted and actually observed responses, and measures the percentage of all cases that are classified in the correct cells on the dependent variable by the predicted probabilities. Classification analyses conducted on the most complete logistic regression models (3) in each analysis plan indicate a moderately high degree of correlation between predicted and observed responses, with the model in each analysis plan producing an overall correct classification of between 75 to 77 percent. This finding, that the logistic models correctly predict about three-fourths of all cases offers additional evidence that they are good models which fit the data well.

In sum, the logistic regression analyses generally corroborate the findings of the OLS regression models and thereby provide additional support for the fourth hypothesis. Adjusting for skewed distributions on the dependent variable by dichotomizing it and conducting logistic regression produces no differences in findings. That is, social learning variables are found to mediate the effect of family structure on delinquency. Specifically, the introduction of social learning variables into the logistic regression models reduces the strength and significance of the effects that family structure exerts on delinquency in the same way as in the OLS regression models.

Controlling for Sex

Recall that gender had a significant effect on delinquency, net of the effects of the social learning variables. This suggests that while the social learning variables mediate the relationship of delinquency to family structure, they may do so somewhat differently for male and female adolescents. In light of this finding, in addition to well-known differences in male and female delinquency reported in the literature, analyses patterned after Plans 3 and 4 were conducted separately for a subsample of males and a subsample of females.

These two plans were chosen because they represent various extremes. Plan 3 provides the greatest variance in the dependent variable while Plan 4 has the least variance in the dependent variable. Plan 3 also provides the strongest correlation between family structure and delinquency while the weakest correlation between the two variables appears in Plan 4. Finally, Plan 3 includes the measurement of delinquency over a two-year period, while Plan 4 uniquely separates family structure, the social learning variables, and delinquency in a longitudinal sequence. For these reasons, controlling for sex in Plans 1 and 2 would not likely yield considerably different results from those reported here. Table 14 gives the distributions for delinquency by sex for Plans 3 and 4.

Table 14. Percentage Distributions of Self-Reported
Delinquency (SRD) for Males and Females

	Males		Females	
	Plan 3	Plan 4	Plan 3	Plan 4
Zero SRD	79%	87%	93%	95%
Low SRD	16	10	6	4
High SRD	5	3	1	1
N	516	529	470	477
Missing	110	97	76	69
Sample Size	626	626	546	546

Table 15 presents standardized estimates for male
delinquency, in Plan 3, regressed on family structure (1),
with social learning variables in the model (2), and with
sociodemographic variables in the equation (3). The table
shows that among males, family structure by itself has a
significant net effect on delinquency (beta=.09, p<.05),
which is weakened and rendered nonsignificant by the addition
of social learning and sociodemographic variables to the
model. Delinquent peer association (DPA) is the only one of
these independent variables to have a significant net effect
on delinquency (beta=.29, p<.01). In a reduced model
including only family structure and delinquent peer
association (not shown), the former was slightly stronger but
still nonsignificant (beta=.05, p=.23) while the latter was
slightly stronger (beta=.31, p<.01).

Table 15. Family Structure, Social Learning, and
          Delinquency: Analysis Plan 3 for Male
          Subsample (N=516)

	(1)	(2)	(3)
Family Structure	.09 *	.02	-.00
Social Learning Parents' Reactions		.07	.05
Friends' Reactions		.05	.06
Deling. Attitudes		-.08	-.06
Violence Attitudes		.06	.05
Neutralizations		.02	.01
Deling. Peers		.29 **	.29 **
Sociodemographics Age			.00
Race			.08
Education			.06
Income			.05
	R^2=.01	R^2=.12	R^2=.13

          * significant at the .05 level
         ** significant at the .01 level

Table 16 presents standardized estimates for female
delinquency, in Plan 3, regressed on family structure (1),
with social learning variables in the model (2), and with
sociodemographic variables in the equation (3). The net
effect on delinquency of family structure by itself is
stronger for females (beta=.19, p<.01) than for males.
However, a comparison of Tables 15 and 16 indicates that the
mediating impact of the social learning variables is weaker
for females than for males. For females, the addition of

social learning variables to the model weakens the relationship between family structure and delinquency but it remains significant. Among the social learning variables in Table 16, attitudes toward interpersonal violence (IPV) and delinquent peer association exert significant effects on delinquency and thereby mediate the effect of family structure on delinquency. No sociodemographic variables are

Table 16. Family Structure, Social Learning, and Delinquency: Analysis Plan 3 for Female Subsample (N=470)

	(1)	(2)	(3)
Family Structure	.19 **	.11 *	.10 *
Social Learning Parents' Reactions		.01	.01
Friends' Reactions		.06	.05
Delinq. Attitudes		.07	.11
Violence Attitudes		.20 **	.16 **
Neutralizations		-.07	-.08
Delinq. Peers		.21 **	.22 **
Sociodemographics Age			-.07
Race			-.03
Education			.02
Income			-.09
	R^2=.04	R^2=.18	R^2=.19

* significant at the .05 level
** significant at the .01 level

significantly related to delinquency. In reduced versions of these analyses (not shown) the only notable difference is that delinquent peer association has a stronger net effect on delinquency.

Table 17. Family Structure, Social Learning, and Delinquency: Analysis Plan 4 for Male Subsample (N=529)

	(1)	(2)	(3)
Family Structure	.06	.01	−.01
Social Learning			
Parents' Reactions		.05	.04
Friends' Reactions		.01	−.02
Delinq. Attitudes		.08	.11
Violence Attitudes		.01	−.00
Neutralizations		−.02	−.03
Delinq. Peers		.26 **	.28 **
Sociodemographics			
Age			−.05
Race			.10 *
Education			.03
Income			.06
	R^2=.00	R^2=.11	R^2=.12

* significant at the .05 level
** significant at the .01 level

Table 17 presents standardized estimates for male delinquency, in Plan 4, regressed on family structure (1), with social learning variables in the model (2), and with sociodemographic variables in the equation (3). The table

shows that the net effect of family structure on delinquency
is beta=.06 (p=.19). Thus, male delinquency in Plan 4 is
less affected by family structure than in Plan 3, and the
relationship between the two variables is weaker than that
for females in either plan. The addition of social learning
and sociodemographic variables to the model reduces the net
effect of family structure. Delinquent peer association
(DPA) is the only social learning variable to significantly
affect delinquency (beta=.26, p<.01). Race is the only
sociodemographic variable to have a significant effect on
delinquency (beta=.10, p<.05), with blacks being slightly
more delinquent than whites. In a reduced model (not shown)
that includes family structure, delinquent peer association,
and race, the effect of family structure disappears (beta=-
.00, p=1.0) while DPA has a stronger effect on delinquency
(beta=.33, p<.01). Race becomes nonsignificant (beta=.06,
p=.21).

Family structure by itself has a significant net effect
(beta=.12, p<.01) on female delinquency in Plan 4. Table 18
presents standardized estimates for female delinquency in
Plan 4 regressed on family structure (1), with social
learning variables in the model (2), and with
sociodemographic variables in the equation (3). The weaker
findings in Plan 4 do not indicate the mediating differences
between males and females that were observed in Plan 3. The
findings do show the mediating impact of social learning
variables, as delinquent peer association (DPA) and attitudes

toward interpersonal violence (IPV) have moderate effects on delinquency: beta=.26 (p<.01) and beta=.13 (p<.05), respectively, where the sociodemographic variables are included. The sociodemographic variables are not significant. A reduced model (not shown) resulted in beta coefficients of .04 (p=.37) for family structure, .19 (p<.01) for attitudes toward interpersonal violence, and .32 (p<.01) for delinquent peer association.

Table 18. Family Structure, Social Learning, and Delinquency: Analysis Plan 4 for Female Subsample (N=477)

	(1)	(2)	(3)
Family Structure	.12 **	.03	.02
Social Learning			
Parents' Reactions		−.03	−.04
Friends' Reactions		.00	.00
Delinq. Attitudes		.10	.12
Violence Attitudes		.16 **	.13 *
Neutralizations		.06	.05
Delinq. Peers		.26 **	.26 **
Sociodemographics			
Age			−.06
Race			−.04
Education			.05
Income			−.06
	R^2=.01	R^2=.19	R^2=.20

* significant at the .05 level
** significant at the .01 level

As indicated above in Table 14, from 13 to 21 percent of males engaged in delinquent behavior while only five to seven percent of females were delinquent. Again, due to the skewness of these distributions, especially that of females, these analyses were repeated using logistic regression and a dichotomous coding of the dependent variable. Again, classification analyses were conducted on the most complete logistic regression model (3), separately for males and females. The overall rate of correct classification for males ranged from 70 to 73 percent, while the rate for females ranged from 80 to 85 percent. These findings again show that the variables in the logistic regression models do a good job of predicting delinquent behavior for both sexes, but somewhat better for the girls than the boys in the study.

The results of the logistic regression analyses generally follow the patterns of the findings discussed above where sex is controlled, including stronger family structure effects on delinquency among females. As was seen in Table 16, however, family structure retains a significant net effect on female delinquency after the addition of the social learning variables to the model in Plan 3 (see Table 24 in Appendix B). For males (see Tables 23 and 25 in Appendix B) the effects of family structure on delinquency are nonsignificant both before and after the social learning and sociodemographic variables are added to the model, and in Plan 4 there is no bivariate relationship between family structure and delinquency. There are a few other differences

regarding the significance of specific variables. For example, attitudes toward interpersonal violence (IPV) and race have significant effects on male delinquency in Plan 3. For females, anticipated friends' reactions toward delinquent behavior (AFR) has a significant effect on delinquency in Plan 3.

In sum, controlling for sex confirms that the relationship between family structure and delinquency is stronger for girls than for boys but that the social learning variables have a mediating effect on family structure for both. The findings also reveal, however, that the intervening effects of the social learning variables on the relationship between family structure and delinquency is weaker for girls than for boys. The fourth hypothesis is generally supported but it is confirmed more for the male than the female subsample.

CHAPTER 6
CONCLUSIONS

Summary

Three central issues were addressed in this study. One was the explication of the relationship between family structure and delinquent behavior. The second was the relationship of delinquent behavior to the social learning variables. The third and most significant issue was the examination of a specific instance of Akers' (1998) Social Structure-Social Learning model, namely a family structure and social learning model.

In Chapter 2 a variety of literature on family variables and delinquency was reviewed. Research has shown that the likelihood of delinquent behavior may be increased as a result of parental criminality, parents' patterns of discipline and punishment, and family violence, including sex abuse and other types of abuse. Research also showed that delinquency may result from more routine and seemingly innocuous family relationships. But perhaps the most dominant focus relating to the delinquent effects of family has been in the area of divorce and single parenthood. Given the increase in divorce and other changes in family structure during the last thirty years, a topic of considerable

interest in the research literature has been the potentially
deleterious effects of these changes on children. While some
studies have focused on children of divorce, this research
focused on the more general concept of family structure.

In Chapter 3 social learning theory was introduced to
provide a potential explanation for whatever impact family
structure has on the delinquent behavior of children. The
central role typically played by parents as primary
socializers of children makes social learning a useful
perspective for explaining the effects of family structure.
Specifically, the usual centrality of family life provides a
setting for differential association in which children are
exposed to parental patterns of norms, values, and behavior.
Parents also provide differential reinforcement in the form
of rewards and punishment for children's behavior. Through
such parental reinforcement, as well as imitation, children
learn norms and attitudes and formulate beliefs about
conforming or deviant behavior. Social learning theory
recognizes these as positive, negative, or neutralizing
definitions. Youths with more delinquent associations and
models, those who are exposed to reinforcement toward
delinquency, and those who learn delinquent definitions will
more likely engage in delinquent behavior.

The theory also accounts for the impact of peers, a
group consistently found to have a strong influence on
behavior. Family discipline, supervision of children, and
the attitudes and beliefs learned by the children within the

family affect the choice and influence of peers with whom the children differentially associate. These associations provide the basis for the learning of other norms and values, and they provide other settings in which differential reinforcement may occur. Behavior is rewarded and punished by one's peers as it is by one's parents. Through this reinforcement, as well as from imitation, youths learn additional definitions about conforming or deviant behavior. Again, the more delinquent one's social learning among peers the greater the likelihood of engaging in delinquency.

Social learning theory was purported to provide the link between social-structural elements such as family structure, and individual-level outcomes such as delinquent behavior. If families are central in social learning as described above, then it is reasonable to suppose that variations in the structure of families would result in variations in conforming or delinquent individual behavior. Hypotheses were therefore posited linking family structure, social learning, and serious delinquency.

Longitudinal data from the National Youth Survey, a nationally representative data set focusing on self-reported delinquent behavior, were analyzed. First, crosstabulations provided evidence of relationships between independent variables of family structure and social learning, and the dependent variable of delinquency. Second, zero-order correlations were used to test Hypotheses 1-3 and ordinary least squares (OLS) multiple linear regression models were

used to test the fourth hypothesis. Given the significance of sex in two of the analysis plans, indicating differences between males and females in the way that the family structure-delinquency relationship is mediated, regression analyses were repeated while controlling for sex. Logistic regression models were run to take into account the skewed distributions of serious delinquency. The findings using logistic regression essentially confirm those from the OLS regression analyses. Generally, all four hypotheses were supported by the findings.

The first hypothesis, that family structure predicts delinquency, is supported by findings indicating that those respondents with only one parent or no parents at all in their household were more likely to engage in delinquent behavior. Correlational analyses indicated that overall relationships were statistically significant but varied from weak to moderate across the four analysis plans.

The second hypothesis, that family structure affects the social learning process conducive to delinquency, is supported in all four analysis plans. Correlational findings indicated that those respondents with one or no parent in their household were more likely to score in a delinquent-prone direction on social learning variables than those in two-parent families. Five of the six social learning variables, excepting attitudes toward delinquency (ATT), were significantly related to family structure across all four analysis plans. Family structure was most strongly and

significantly correlated with anticipated parental reactions
to delinquent acts (APR), anticipated friends' reactions to
delinquent acts (AFR), and delinquent peer association (DPA).

The third hypothesis, that the social learning variables
predict delinquency, is strongly supported in all four
analysis plans. Crosstabulations indicated that respondents
scoring in the delinquent direction for each of the six
social learning variables also scored higher on self-reported
delinquency. Correlational findings indicated that those
respondents who scored higher on various pro-delinquency
social learning measures were more likely to engage in
delinquent behavior. All six social learning variables were
strongly correlated with delinquency at a high level of
significance across all four analysis plans.

The results from the first three hypotheses established
the relationships between family structure, the social
learning variables, and delinquency, thereby setting up the
fourth and major hypothesis. Hypothesis 4, which states that
the introduction of the social learning variables in the
relationship between family structure and delinquency will
reduce the strength and significance of family structure's
effect on delinquency, also is supported. In each of four
OLS regression models, both the strength and the significance
of the effects of family structure on subsequent delinquency
were substantially reduced from the zero-order correlations
and from models without the social learning variables when
the social learning variables were added to the model. These

results were confirmed with the addition of sociodemographic variables to the models. Using logistic regression, the strength of family structure was reduced in each of the models, but in Plan 4 family structure by itself was not significantly related to delinquency so there was little effect to mediate.

Sex was identified, in Plans 1 and 3, as the only sociodemographic variable to have a significant effect on delinquent behavior. Thus, separate analyses were conducted for boys and girls. The results generally confirmed earlier findings, while revealing that the weak relationship between family structure and delinquency in Plan 4, as discussed above in relation to the first hypothesis, held only for males. The social learning variables reduced the net effect of family structure on delinquency for both sexes, although family structure remained significant for females in Plan 3.

As mentioned above, delinquent peer association and attitudes toward interpersonal violence were the social learning variables most frequently found to play a significant mediating role in the relationship between family structure and delinquent behavior. Anticipated parental reactions was significant in Plan 1 for both the OLS and logistic regressions, and anticipated friends' reactions was significant in Plan 3 for the logistic models, both before controlling for sex and for females alone. Attitudes toward delinquent acts was significant in Plan 4 for both the OLS and logistic regressions. Among other sociodemographic

variables, education and income were not significant in any case, and race significantly affected male delinquency only in one OLS model and one logistic model. Age was significant in Plan 2 but it was determined that this finding was unreliable given contradictory findings in crosstabulation analysis and the absence of significance in other analysis plans.

Conclusions

The conclusions that may be drawn from this research are both practical and theoretical. The findings showed that children living in homes without two parents are more likely to engage in delinquency than children living with two parents. This is the case whether the two parents are both biological or one of the two is a stepparent. Beyond this distinction, it does not appear to affect delinquency whether a child lives with a single parent or with nonparental adults. These findings provide mixed support for the idea that family structure affects delinquency as the relationship is not found across all values of family structure. However, the observed difference between two parents of whatever type and a single parent is consistent with the consensus of previous research suggesting that family structure and divorce are two distinct concepts that measure different phenomena. In this case, two-parent families, regardless of the occurrence of divorce, are less conducive to delinquency than are single-parent families.

Controlling for sex revealed that the relationship between family structure and delinquency is stronger for females than for males, contradicting much previous research (e.g. Wells and Rankin, 1991; Gove and Crutchfield, 1982). This discrepancy may result from the combination in the present research of two-parent stepfamilies and families with two biological parents in a single category of family structure. Johnson (1986) concluded that the stronger relationship between family structure and delinquency among males resulted largely from the relationship between males and their stepfathers. The coding of family structure may have obscured a similar pattern in the present research.

Nevertheless, the current findings indicate a stronger relationship between family structure and delinquency for females than for males. In Analysis Plan 3 family structure retained a significant net effect on delinquency even after the social learning variables were added to the equation. But given the general finding of a reduction in the net effect of family structure on male and female delinquency, it appears that this may result simply from the stronger relationship between family structure and female delinquency, particularly in Plan 3.

The findings suggest that females may be more dependent upon their parents for learning attitudes consistent with conformity than are their male counterparts. While delinquent peer association had a significant net effect on delinquency for both sexes, attitudes toward interpersonal

violence had significant net effects on female delinquency. Additionally, logistic regression indicated that anticipated friends' reactions toward delinquent behavior had a significant net effect on delinquency only for females. Thus, it may be through a greater variety of social learning variables that family structure plays a role in determining female delinquency, compared to that which occurs among males. This would be consistent with previous research (e.g. Farnworth, 1984; Van Voorhis et al., 1988) which found the effects of other mediating variables between family structure and delinquency to be greater for females than for males.

The findings relating to the fourth hypothesis may be taken as significant support for social learning theory. The results indicate that social learning is the process that explains the relationship between family structure and delinquency. This finding provides empirical support for the theoretical argument posited by Akers (1998) in his Social Structure-Social Learning (SSSL) model, that social learning theory is capable of linking macro and micro levels by explaining how the social structure shapes individual behavior. Specifically, the social-structural element of family structure explains the individual-level outcome of delinquent behavior via the behavioral process of social learning. Presumably, social learning theory holds the potential for explaining how other elements of social structure, such as society or community, affect delinquency and other types of deviant behavior.

Differential association, definitions, and differential reinforcement each had significant mediating effects on the relationship between family structure and delinquency. For example, the significance of anticipated parental reactions indicates that the social learning process of differential reinforcement is mediating the delinquent effects of family structure. The significance of attitudes toward interpersonal violence indicates that adherence to delinquent definitions toward violence mediates the relationship between family structure and delinquency.

But it is most notably through the social learning process of differential association, as measured here by delinquent peer association, that social learning theory explains the relationship between family structure and delinquency. For example, a youth living in a single-parent household will be more likely than a youth living in a two-parent home to associate with other youths who have engaged in delinquent behavior. This association may then result in one's own delinquency. Social learning theory also recognizes reciprocal effects whereby a reversed sequence may occur. That is, one's delinquency may lead a youth to befriend other delinquents, and increasing delinquent patterns may lead to the disintegration of the youth's family. However, Akers (1998) suggests that the former sequence, where delinquent associations precede delinquency, is the more typical one.

The interdependence between family and peer variables has been noted by Jensen and Rojek. The stronger the relationship between a youth and parents, they said, "the weaker the chances that he or she will acquire delinquent friends or choose to go along with peers in situations of conflict with authority" (1992, p. 306). While the influence of delinquent peers often has been found to be a strong predictor of delinquency, and the association with delinquent peers is believed to be related to family relationships and family structure, the causal ordering of family and peer variables is less clear. Using longitudinal data, the current study supports the contention that delinquent peer association is a strong predictor of delinquency, while suggesting that delinquent peer association is influenced by family structure.

Implications for Policy

This research finds that single-parent and no-parent family structures have an indirect impact on serious self-reported delinquency. This finding suggests, however, that an increased divorce rate will result in more delinquency unless the remarriage rate is also high. Similar levels of delinquency were found among children living with two biological parents and those living with one biological parent and one stepparent. Thus, the evidence suggests that divorce will have an effect on delinquency if it induces one-parent families. It appears from these findings that if the

two-parent family is re-established for the children, its
delinquency-inhibiting effects will also be re-established.
It follows that family intervention and social policy
designed to encourage or provide incentives for the stability
of two-parent households (e.g. prevent divorce in the first
place and encourage remarriage) will contribute to a decrease
in delinquency. Conversely, economic and social policies
which set conditions promoting the formation of single-parent
households may also have the effect of contributing to an
increase in delinquency.

While the results indicate that a two-parent family
structure will more likely provide the conditions that are
less conducive to delinquency, the significance of the
intervening social learning variables reveals that
associating with delinquent peers and learning deviant
attitudes are the variables directly implicated in
delinquency causation. Thus, the findings suggest that
social learning variables may be affected by conditions other
than family-related variables, and that policies which take
into account the role of social learning variables--
especially differential peer association and definitions--in
the formation of delinquency will contribute to the reduction
of delinquency for all youths, regardless of family
structure.

Compared to structural family variables, process
variables such as differential peer association and
definitions that occur within the usually intimate

interaction of peer groups and families may require a more complicated response in terms of social policy. Nevertheless, programs such as organized sports, peer counseling, pro-social peer activities, and social skill development take advantage of pro-conformity peer associations while at the same time providing the setting for peer interaction that may counter delinquent influences.

Informational campaigns should aim toward increasing awareness of the ways by which delinquent behavior is socially learned. This may better provide parents with an appreciation for the importance of remaining aware of and shaping their children's attitudes, providing reinforcement and punishment in favor of nondelinquency and against delinquency, and closely monitoring their children's peer interaction. Parents know intuitively that who their children's friends are is very important. Social learning provides theoretical support for this knowledge. Similarly, given that social learning variables directly affect delinquency regardless of family structure, teachers and other adults who occupy prominent places in the lives of adolescents should also be aware of the ways by which delinquent behavior is socially learned.

As stated in the introduction, single-parent families have been an increasing reality in recent decades. Furthermore, there is no indication that the trend will reverse itself. In Chapter 2, the point was also made that single-parent families may be variously disintegrated. In

other words, some single-parent families may prove equal or superior to two-parent families in pro-social socialization. This is likely to be the case when the choice is a competent single parent or a two-parent family in which there is considerable conflict and alienation of children in the family. Given these considerations, it is appropriate that care be taken in the implementation of policy so that single-parent families are not marginalized. Where possible, policies should concentrate on providing community resources for day-care and other support for single parents along with opportunities to enhance parenting skills.

This research has found that social learning variables play an important role in the process of becoming delinquent or conforming, and that single-parent families are more at risk of delinquency. Additionally, it is consistent with social learning theory to suggest that efforts made to increase the level of pro-conformity social learning among children from single-parent families may contribute to the prevention of delinquent outcomes. Where parent-child interaction is compromised, especially in the case of working single parents, mentoring programs, big-brother programs, after-school programs, and similar efforts may successfully serve a surrogate function. Programs aimed at making parents (both in two-parent and single-parent homes) aware of the level of risk of delinquency that their children may face, and educating them about the ways in which that risk can be

minimized, can be a valuable step toward preventing
delinquency.

Limitations and Suggestions for Future Research

A number of limitations should be noted regarding the
present research. First, the waves of data employed in this
study are approximately twenty years old, years during which
trends in juvenile delinquency may have changed. Osgood et
al. (1989), for example, found that self-reported assaults
increased from 1975 to 1985. In the 1990s juvenile violence
has been an increasing source of concern (Elliott, 1994).
The rise in divorce and nontraditional family structures may
have resulted in more recent years in a decrease in their
deleterious effects (Jensen and Rojek, 1992). Whatever
changes in juvenile delinquency and norms of family structure
may have occurred in the last two decades, the National Youth
Survey's (NYS) nationally representative sample and
longitudinal data collection make it a valuable data set
despite the passage of time. Moreover, while delinquency
trends may change, the social learning mechanisms that are at
the center of this research are likely more constant.
Nevertheless, analysis of more recent longitudinal data would
address this limitation.

The longitudinal analysis employed here enabled the
analysis of the effects of family structure and social
learning variables across time. The longitudinal measurement
of variables is one way to test the theoretical ordering of

variables. However, as noted by Van Voorhis et al. (1988), a social learning perspective suggests that the effects of changes in family structure may be cumulative over a number of years. The one-year lags employed here, although preferable to cross-sectional analysis, are relatively short periods of time for detecting the effects of family structure and social learning. A more extended longitudinal analysis would provide a stronger test of the effects of family structure and of social learning theory.

Another limitation of the present research is the unavailability of an appropriate item measuring the social learning concept of imitation. While the inclusion of all four central concepts of social learning theory would be desirable in a study focusing on the theory, the six items that were used provided good measures of differential association and definitions. The measures of differential reinforcement are adequate, although they are limited by their measurement of the anticipated reactions of parents and peers to hypothetical delinquency, rather than the actual rewards and punishment by parents and peers to actual delinquent behavior carried out by the respondents. Moreover, empirical findings have shown that imitation is the weakest of the four social learning concepts. But a more complete test of social learning variables as mediators of the effect of family structure on delinquency would result from an analysis including an imitation measure, as well as better measures of differential reinforcement.

This study was hindered by a relatively low level of delinquency in the sample and the resulting statistical limitations. One cause of the low level of delinquent behavior in this sample is the relatively small amount of serious delinquency that occurs compared to other types of delinquency. As seen in Table 3, there was considerable skewness in the dependent variable. This shortcoming was addressed through the use of logistic regression, and indirectly by controlling for sex (see Table 14).

Future research also might include an investigation of the reciprocal effects between variables. Most researchers agree that the temporal ordering presented here is the more likely and reasonable arrangement. However, some research (see Akers and Lee, 1996) has found that, in addition to the effects of social learning variables on delinquent behavior, delinquency has an impact on social learning variables. Although less likely, there may also be some impact by delinquency and social learning variables on family structure. According to Akers (1998), the two sequences are not mutually exclusive but simply the social learning process operating at different times.

Primary research would be one way to address the limitations of the social learning measures used in this research. Variables would be created for each of the four social learning concepts. The concepts of differential association and definitions could be measured in a way similar to that found in the National Youth Survey. Measures

of differential reinforcement by parents and peers would be constructed to measure actual reinforcement of delinquent acts rather than anticipated reinforcement as found in the NYS. Lastly, a measure of imitation would be included to test a more complete social learning model.

The relationships between family structure, social learning, and delinquency might be investigated in a sample of high school students. In addition to seeking to replicate the general findings of the present research particular attention would be given to the findings relating to sex, given the finding in the present research that the effect of family structure on delinquency is stronger for females.

Indeed, sex may be investigated as an exogenous variable indicating location in the social structure that, like family structure, has an impact on delinquency through the process of social learning. Empirically, the findings presented in this research suggest that differences in delinquency between boys and girls may be accounted for by social learning variables. Theoretically, in his Social Structure-Social Learning (SSSL) model, Akers (1998) lists sex as one among several variables that may affect delinquency through a mediating process of social learning. Other structural variables that may serve as exogenous variables in future research on the SSSL model include broad measures of society and community, sociodemographic variables such as age, race, and class, and more immediate measures of one's primary groups such as family and peers.

Another direction for future inquiry may be to address the limitations of the present research in another study using NYS data. The focus on serious delinquency in the present research was driven by an interest in more serious offenses as well as the relative paucity of research on serious delinquency. However, the NYS offers a great variety of delinquency measures, ranging from small acts of deviance such as cheating at school to alcohol and drug abuse to the serious offenses used in this research. Including less serious offenses in the measurement of the dependent variable would increase the frequency of delinquency. This would permit more flexibility in the coding of the dependent variable and in statistical analysis, particularly in the use of ordinary least squares regression.

Such a measure of delinquency would be no less adequate for testing the mediating effects of social learning variables. A measure of delinquency broadened to include NYS measures of substance abuse would also allow a more complete test of social learning theory's central concepts. There is an item in the survey measuring exposure to substance abuse by parents, representing the imitation, or modeling, concept of social learning theory that was missing from the current research.

Employing a broader range of longitudinal data would serve both to include more recent data on juvenile delinquency (and at later ages) and to permit analysis of the effects of change in family structure across more extended

lags than the one- and two-year lags used here. In addition to the first five waves of NYS data collected between 1976 and 1980, data were collected for each succeeding year at three-year intervals into the 1990s. These waves of data are becoming available through the Inter-University Consortium for Political and Social Research (ICPSR).

Finally, a longitudinal analysis could also include an investigation of reciprocal relationships between the social learning variables and delinquency, and perhaps family structure. This would be achieved simply by including in an analysis measurement of each of the variables from each wave of data. Akers has defended social learning theory from the suggestion that "peer associations take place only or largely after adolescents have already separately and individually established a pattern of deviant behavior and then choose delinquent peers simply because they have the same behavior in common" (Akers, 1998, p. 120). Rather, Akers maintains that evidence indicates that youths, based on prior family and other variables, differentially associate with delinquent peers or those who are tolerant of delinquency, learn or strengthen delinquent definitions, and are exposed to models that reinforce delinquency, and then initiate or increase their own delinquent behavior. This behavior goes on to influence further associations and definitions. An analysis of NYS data could contribute to the clarification of the relationships between these levels of variables.

NATIONAL YOUTH SURVEY ITEMS OPERATIONALIZED AS MEASURES OF VARIABLES USED IN THIS STUDY

Self-Reported Delinquency (SRD)

Property Offenses

1. Motor vehicle theft: "How many times in the last year have you stolen or tried to steal a motor vehicle, such as a car or motorcycle?"

2. Theft of over $50: "How many times in the last year have you stolen or tried to steal something worth more than $50?"

3. Breaking into building: "How many times in the last year have you broken or tried to break into a building or vehicle to steal something or just to look around?"

Violent Offenses

1. Personal attack: "How many times in the last year have you attacked someone with the idea of seriously hurting or killing him or her?"

2. Sexual assault: "How many times in the last year have you had or tried to have sexual relations with someone against their will?"

3. Use of force on another: "How many times in the last year have you used force or strong-arm methods to get money or things from other students?"

Family Structure

Living arrangement: "With whom are you now living?"

1. mother and father

```
        2.  mother only
        3.  father only
        4.  mother and stepfather
        5.  father and stepmother
        6.  spouse
        7.  other (specify)
        8.  boyfriend/girlfriend (opposite sex)
        9.  alone
       10.  mother and other relative(s)
       11.  mother and other non-related adult(s)
       12.  father and other relative(s)
       13.  father and other non-related adult(s)
       14.  mother and father plus relative(s)
       15.  mother and father plus other non-related adult(s)
       16.  relative(s) (not parents)
       17.  other

       Two-parent:   1, 4, 5, 14, 15
       Single-Parent: 2, 3
       No-Parent:    7, 8, 9, 16
       Omitted:      6, 10, 11, 12, 13, 17
```

Social Learning Variables

Differential Reinforcement

Differential reinforcement of parents (APR): "How would your parents react if you ...?"

```
           1=strongly disapprove
           2=disapprove
           3=neither approve nor disapprove
           4=approve
           5=strongly approve
```

1. stole something worth less than $5
2. sold hard drugs such as heroin, cocaine and LSD
3. used marijuana or hashish
4. stole something worth more than $50
5. hit or threatened to hit someone without any reason
6. used alcohol
7. purposely damaged or destroyed property that did not belong to you
8. broke into a vehicle or building to steal something

Differential reinforcement of friends (AFR): "How would your friends react if you ...?"

```
           1=strongly disapprove
           2=disapprove
```

```
3=neither approve nor disapprove
4=approve
5=strongly approve
```

1. stole something worth less than $5
2. sold hard drugs such as heroin, cocaine and LSD
3. used marijuana or hashish
4. stole something worth more than $50
5. hit or threatened to hit someone without any reason
6. used alcohol
7. pressured or forced someone to do more sexually than they wanted to do
8. purposely damaged or destroyed property that did not belong to you
9. broke into a vehicle or building to steal something

Definitions

Attitudes toward delinquent acts (ATT): "How wrong is it for someone your age to ...?"

```
1=very wrong
2=wrong
3=a little bit wrong
4=not wrong at all
```

1. purposely damage or destroy property that does not belong to him or her
2. use marijuana or hashish
3. steal something worth less than $5
4. hit or threaten to hit someone without any reason
5. use alcohol
6. break into a vehicle or building to steal something
7. sell hard drugs such as heroin, cocaine, and LSD
8. steal something worth more than $50
9. get drunk once in awhile
10. give or sell alcohol to kids under 18

Attitudes toward interpersonal violence (IPV):

```
1=strongly disagree
2=disagree
3=neither agree nor disagree
4=agree
5=strongly agree
```

1. It is all right to beat up people if they started the fight.
2. It is all right to physically beat up people who call you names.

3. Since the people on TV often get what they want by using violence, it's probably all right for you to use it too.
4. If people do something to make you really mad, they deserve to be beaten up.
5. It's OK to hit someone to get them to do what you want.
6. If you don't physically fight back, people will walk all over you.

Deviant neutralizations (EDN):

    1=strongly disagree
    2=disagree
    3=neither agree nor disagree
    4=agree
    5=strongly agree

1. To stay out of trouble, it is sometimes necessary to lie to teachers.
2. At school it is sometimes necessary to play dirty in order to win.
3. It's okay to lie if it keeps your friends out of trouble.
4. In order to gain the respect of your friends, it's sometimes necessary to beat up on other kids.
5. You have to be willing to break some rules if you want to be popular with your friends.
6. Sometimes it's necessary to lie to your parents in order to keep their trust.
7. It may be necessary to break some of your parents' rules in order to keep some of your friends.

Differential Association

Delinquent peer association (DPA): "During the last year how many of (your friends) have ...?"

    1=none of them
    2=very few of them
    3=some of them
    4=most of them
    5=all of them

1. purposely damaged or destroyed property that did not belong to them
2. used marijuana or hashish
3. stolen something worth less than $5
4. hit or threatened to hit someone without any reason
5. used alcohol
6. broken into a vehicle or building to steal something

7. sold hard drugs such as heroin, cocaine, and LSD
8. stolen something worth more than $50
9. gotten drunk once in awhile
10. sold or given alcohol to kids under 18

Sociodemographic Variables

Age

"How old are you now?" Possible ages range from 13 to 20 at wave three (1978).

Sex

Interviewer notes the sex of the respondent.

1. Males
2. Females

Race

"Which one of these groups best describes you?" This question was asked only if the interviewer could not visually determine the answer.

1. Anglo or White
2. Black
3. Mexican-American
4. Spanish-American
5. Chicano
6. American Indian
7. Asian
8. Puerto Rican
9. Other (specify)

The NYS subsequently collapsed the Mexican-American, Spanish-American, Chicano, and Puerto Rican categories into a single category labeled "Hispanic."

Class

Income:

"Using the gold card, what would you say was the approximate total family income last year, including all sources before taxes?" This question was asked of parents.

1. $ 6,000 or under
2. 6,001 to 10,000
3. 10,001 to 14,000
4. 14,001 to 18,000
5. 18,001 to 22,000
6. 22,001 to 26,000
7. 26,001 to 30,000
8. 30,001 to 34,000
9. 34,001 to 38,000
10. 38,001 or more

Education:

"How far did you go in school?" This question was asked of each parent.

1. post-graduate degree
2. completed college
3. some college; completed specialized training or education; some specialized training or education
4. completed high school (grade 12 or GED)
5. some high school (grades 9-12)
6. completed grade school (grades K-8)
7. some grade school

The following recoding was used for the present study:

1. (High) a summed parental score of 5 or less
2. (Medium) a summed parental score of 6 to 8
3. (Low) a summed parental score of 9 or more

Number of Siblings

"How many children or youth under 18 (including subject) live in this home?" This question was asked of parents. Possible responses range from 1 to 9 or more.

Table 19. Sociodemographic Variables, Family Structure,
Social Learning, and Delinquency: OLS
Regression (N=986)

	(1)	(2)	(3)
Sociodemographics			
Age	.06	.05	-.02
Sex	-.17 **	-.17 **	-.08 *
Race	.05	.03	.04
Education	.07 *	.06	.05
Income	-.02	.00	.01
Family Structure		.09 **	.03
Social Learning			
Parents' Reactions			.04
Friends' Reactions			.06
Deling. Attitudes			-.01
Violence Attitudes			.10 *
Neutralizations			-.01
Deling. Peers			.26 **
	R^2=.047	R^2=.055	R^2=.159

 * significant at the .05 level
** significant at the .01 level

Table 20. Family Structure, Social Learning, and
         Delinquency: Analysis Plan 2 Using Logistic
         Regression (N=806)

	(1)	(2)	(3)
Family Structure T2	.13 *	.07	.10
Social Learning T2 Parents' Reactions		-.06	-.08
Friends' Reactions		.13	.09
Delinq. Attitudes		.11	.18
Violence Attitudes		.24 *	.18
Neutralizations		.10	.10
Delinq. Peers		.33 **	.37 **
Sociodemographics Age			-.17 *
Sex			-.19 *
Race			.06
Education			.05
Income			.08
	X^2=4.6 1 d.f.	X^2=101.1 7 d.f.	X^2=108.8 12 d.f.

  * significant at the .05 level
 ** significant at the .01 level

Table 21. Family Structure, Social Learning, and
Delinquency: Analysis Plan 3 Using Logistic
Regression (N=983)

	(1)	(2)	(3)
Family Structure T1	.15 **	.07	.03
Social Learning T1			
Parents' Reactions		.06	.03
Friends' Reactions		.26 **	.24 **
Delinq. Attitudes		-.03	.01
Violence Attitudes		.31 **	.23 **
Neutralizations		-.08	-.10
Delinq. Peers		.26 **	.28 **
Sociodemographics			
Age			-.00
Sex			-.19 **
Race			.11
Education			.06
Income			.03
	X^2=11.4	X^2=130.7	X^2=142.8
	1 d.f.	7 d.f.	12 d.f.

  * significant at the .05 level
 ** significant at the .01 level

Table 22. Family Structure, Social Learning, and
Delinquency: Analysis Plan 4 Using Logistic
Regression (N=1,005)

	(1)	(2)	(3)
Family Structure T1	.09	-.02	-.06
Social Learning T2			
Parents' Reactions		-.04	-.04
Friends' Reactions		.17	.09
Deling. Attitudes		.13	.23 *
Violence Attitudes		.18 *	.12
Neutralizations		.05	.03
Deling. Peers		.32 **	.34 **
Sociodemographics			
Age			-.10
Sex			-.19 *
Race			.12
Education			.01
Income			.03
	X²=2.4	X²=109.9	X²=117.8
	1 d.f.	7 d.f.	12 d.f.

* significant at the .05 level
** significant at the .01 level

Table 23. Family Structure, Social Learning, and
Delinquency: Analysis Plan 3 Using Logistic
Regression for Male Subsample (N=514)

	(1)	(2)	(3)
Family Structure T1	.08	−.00	−.04
Social Learning T1			
Parents' Reactions		.07	.05
Friends' Reactions		.13	.16
Delinq. Attitudes		−.08	−.06
Violence Attitudes		.17 *	.16
Neutralizations		−.04	−.06
Delinq. Peers		.32 **	.32 **
Sociodemographics			
Age			.02
Race			.15 *
Education			.06
Income			.12
	X^2=2.1 1 d.f.	X^2=50.2 7 d.f.	X^2=56.3 11 d.f.

* significant at the .05 level
** significant at the .01 level

Table 24. Family Structure, Social Learning, and
Delinquency: Analysis Plan 3 Using Logistic
Regression for Female Subsample (N=469)

	(1)	(2)	(3)
Family Structure T1	.28 **	.19 *	.15
Social Learning T1			
Parents' Reactions		.04	-.01
Friends' Reactions		.46 *	.41 *
Delinq. Attitudes		.09	.24
Violence Attitudes		.38 **	.35 *
Neutralizations		-.20	-.19
Delinq. Peers		.18	.18
Sociodemographics			
Age			-.07
Race			.04
Education			.07
Income			-.25
	X^2=12.8	X^2=68.6	X^2=74.9
	1 d.f.	7 d.f.	11 d.f.

* significant at the .05 level
** significant at the .01 level

Table 25. Family Structure, Social Learning, and
          Delinquency: Analysis Plan 4 Using Logistic
          Regression for Male Subsample (N=528)

	(1)	(2)	(3)
Family Structure T1	-.00	-.09	-.12
Social Learning T2			
Parents' Reactions		-.01	-.01
Friends' Reactions		.09	.02
Delinq. Attitudes		.14	.22
Violence Attitudes		.01	.01
Neutralizations		-.01	-.02
Delinq. Peers		.35 **	.39 **
Sociodemographics			
Age			-.11
Race			.15
Education			.00
Income			.10
	X^2=.00	X^2=48.8	X^2=52.7
	1 d.f.	7 d.f.	11 d.f.

 * significant at the .05 level
** significant at the .01 level

Table 26. Family Structure, Social Learning, and
Delinquency: Analysis Plan 4 Using Logistic
Regression for Female Subsample (N=477)

	(1)	(2)	(3)
Family Structure T1	.24 **	.14	.05
Social Learning T2			
Parents' Reactions		−.11	−.16
Friends' Reactions		.28	.32
Delinq. Attitudes		.13	.18
Violence Attitudes		.35 *	.31
Neutralizations		.18	.17
Delinq. Peers		.31 *	.29 *
Sociodemographics			
Age			.01
Race			.09
Education			.02
Income			−.16
	X^2=6.8	X^2=60.2	X^2=62.0
	1 d.f.	7 d.f.	11 d.f.

* significant at the .05 level
** significant at the .01 level

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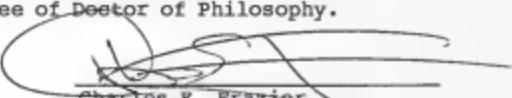
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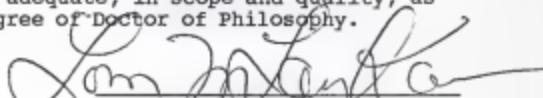
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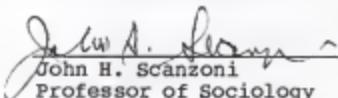
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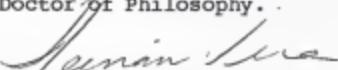
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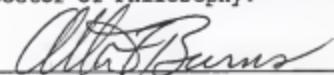
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